Draft Comprehensive Risk Assessment Sampling and Analysis Plan 04-01

February 2004

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ADMIN RECORD

BZ-A-000671

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Draft Comprehensive Risk Assessment Sampling and Analysis Plan 04-01

Approval received from the Environmental Protection Agency

(
)

Approval letter is contained in the Administrative Record

February 2004

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Figure 3 30-Acre Grid With Existing Radionuclide Surface Soil Sampling Locations

Figure 4 30-Acre Grid With Existing Metal Surface Soil Sampling Locations

Figure 5 Proposed Buffer Zone 30-Acre Grid Surface Soil Sampling Locations

5 6

ACRONYMS

BZ Buffer Zone

CRA Comprehensive Risk Assessment

DOE US Department of Energy

EU Exposure Unit

pC1/g picocuries per gram

PMJM Preble's meadow jumping mouse

QA quality assurance

QC quality control

RFETS Rocky Flats Environmental Technology Site

1.0 INTRODUCTION

Following accelerated actions at the Rocky Flats Environmental Technology Site (RFETS), the Department of Energy (DOE) will perform a Draft Comprehensive Risk Assessment (CRA) to assess human health and ecological risks posed by remaining metals, chemicals and radionuclides. To support completion of the CRA, DOE is conducting additional surface soil sampling in the large area of the Buffer Zone (BZ) outside of areas that have no identified contaminant releases to the environment. DOE has agreed with the recommendation of the Risk Assessment Work Group (Colorado Department of Public Health and Environment, U.S. Environmental Protection Agency, DOE, U.S. Fish and Wildlife Service and Kaiser-Hill) that this area of the BZ will be sampled for metals and radionuclides by a composite sampling methodology

BZ sampling will be conducted on a grid basis within each BZ exposure unit (EU) as shown on Figure 1 The relationship between the EUs and the Preble's meadow jumping mouse (PMJM) protected area is shown on Figure 2

2.0 SAMPLING

Sampling of surface soil will be performed in the BZ on a 30-acre grid. Statistical grids have computer-generated random start points and orientations. Grid cells with existing metals and radionuclide surface soil data will not be sampled. Grid cells with only radionuclide data will be sampled for metals. Grid cells with only metals data will be sampled for radionuclides. Grid cells without existing metals and radionuclide data will be sampled for both categories of analytes. Existing surface soil radionuclide and metals data in each BZ grid cell are shown in Figures 3 and 4. Table 1 lists the radionuclides and metals that will be analyzed. The analytes in Table 1 comprise the standard metal and radionuclide analytical suites requested from offsite laboratories to support characterization and confirmation for environmental restoration activities (Kaiser-Hill 2003)

Table 1 lists the radionuclides and metals for analysis

Table 1
Radionuclide and Metal Analytes

| Analyte Group | Analyte | |
|---------------|-------------------|---|
| Radionuclide | Americium-241 | |
| | Plutonium-239/240 | _ |
| | Uranium-234 | |
| | Uranium-235 | |
| | Uranium-238 | |
| Metal | Aluminum | |
| | Antimony | |

| Analyte Group | Analyte |
|---------------|------------------|
| | Arsenic |
| | Barium |
| | Beryllium |
| | Boron |
| | Cadmium |
| | Calcium |
| | Chromium (Total) |
| | Cobalt |
| | Соррег |
| | Iron |
| | Lead |
| | Lithium |
| | Magnesium |
| | Manganese |
| | Mercury |
| | Molybdenum |
| | Nickel |
| | Selenium |
| | Sılıca |
| | Silver |
| | Sodium |
| | Strontium |
| | Thallium |
| | Tın |
| | Titanium |
| | Uranium (Total) |
| | Vanadium |
| | Zinc |

Within each grid cell, surface soil subsamples will be collected in each quadrant and in the center. Subsamples will be collected from the surface to a depth of six inches using a hand auger, slide hammer, or trowel. The five subsamples will be composited into a single sample and aliquots will be extracted for the metals and/or radionuclide analyses. Vegetation and debris (rocks, sticks, etc.) will be removed from each of the 5 subsamples before compositing. The center subsample location will be designated as the composite sample location. Grid cells are numbered sequentially, beginning at the western edge of the BZ as shown on Figure 5. Each subsample is designated by the cell number and the geographic quadrant within the cell. For example, the subsample in the northwestern corner of grid number Q10 is designated Q10-NW

THIS TARGET SHEET REPRESENTS AN OVER-SIZED MAP / PLATE FOR THIS DOCUMENT (Ref 04-RF-00210, JLB-010-04)

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Figure 5:

Proposed Buffer Zone 30-Acre Grid Surface Soil Sampling Locations

File:W:\Projects\fy2004\CRA\SAP\cra sap.apr\Figure 5

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U S DEPARTEMENT OF ENERGY ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE

GOLDEN, COLORADO

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Proposed sampling locations and analyte groups are shown on Figure 5, summarized in Table 2, and described in Table 3 Subsample locations were adjusted, where necessary, to account for geographical features such as streams and roads as well as accessibility by the sampling team Sampling, data management, and analytical methods will be in accordance with the Buffer Zone Sampling and Analysis Plan (DOE 2002)

Table 2
CRA BZ Sampling Summary

| Category | Total |
|---------------------------------|-------|
| Number of Sampling Grids | 117 |
| Number of Sampling Locations | 585 |
| Number of Radionuclide Analyses | 108 |
| Number of Metal Analyses | 106 |

No permanent disturbance of PMJM habitat (Figure 2) will occur from project activities Rocks or soil not needed for analytical purposes, will be returned to the sample hole Each sampling location in PMJM habitat will be reseeded with a native seed mixture consisting of the following species Western Wheatgrass (Agropyron smithii), Slender Wheatgrass (Agropyron trachycaulum), Big Bluestem (Andropogon gerardii), Side-Oats Grama (Bouteloua curtipendula), Blue Grama (Bouteloua gracilis), Buffalo Grass (Buchloe dactyloides), and Green Needlegrass (Stipa viridula)

3.0 QUALITY ASSURANCE/QUALITY CONTROL

Quality assurance(QA)/quality control (QC) procedures will be in accordance with the BZSAP requirements, but because composite samples will be collected, additional QA/QC requirements will be implemented. Additional requirements are as follows

- Each grid is composed of five subsamples, which are to be composited. The composited sample is considered a single sample for purposes of determining QC frequency
- Care will be taken to take approximately the same volume of soil from each of the
 five subsample locations Vegetation and debris (rocks, sticks, etc.) will be
 removed from each of the five subsamples before compositing and the volume of
 the debris-removed subsamples should be approximately equal
- All five subsamples in each grid will be sampled using the same equipment
- A field duplicate will be collected by taking a duplicate sample from each of the five subsample locations The duplicate subsamples will be processed for debris

and volume in the same manner as the primary subsamples. The duplicate subsamples will be composited into a single sample using the same techniques as the primary sample.

3.1 QC Frequency

<u>Field Duplicates</u> – There are 12 EUs where soil will be sampled and analyzed for metals and/or radionuclides. The requirement for field duplicates is five percent for each EU None of the EUs contains more than 20 sampling locations, therefore 1 field duplicate in each EU will be collected. The field duplicate will be analyzed for every analyte associated with the sampling location. The grid nearest the center of each EU is the grid that will be duplicated and will be a grid with both metal and radionuclide analyses.

Blanks - As with the field duplicates, 1 field blank will be collected for each EU

<u>Rinsates</u> – As with the field duplicates, 1 rinsate will be collected for each EU unless disposable equipment is used

Trip blanks are not required

4.0 REFERENCES

DOE, 2002, Buffer Zone Sampling and Analysis Plan, Rocky Flats Environmental Technology Site, Golden, Colorado, April

Kaiser-Hill Company, LLC, 2003, BOA Implementation Requirements, GR04-A 4, October

Table 3
Sampling Specifications for CRA BZ Sampling

| | | | C GJ | The survey of th | | • | | |
|---------------|---|-------------|---------------|--|------------|--------------------------|-------------------------|----------------------|
| Exposure Unit | | Cell Number | Location Code | Casting | Northing | Depth Interval (feet) | Analyte | Analytical Method |
| West Area | | A7 | AK39-000 | 2074351 154 | 749237 671 | 9 0-0 | Radionuclides Metals | Alpha Spec 6010 |
| West Area | | A7 | A7-NI | 2074328 805 | 750102 324 | 9-0 | Radionuclides Metals | Alpha Spec 6010 |
| West Area | | A7 | A7-N2 | 2074328 805 | 750674 324 | 9-0 | Radionuclides Metals | Alpha Spec 6010 |
| West Area | | A7 | A7-S1 | 2074341 597 | 747814 324 | 9-0-0 | Radionuclides Metals | Alpha Spec 6010 |
| West Area | | A7 | A7-S2 | 2074341 597 | 748373 532 | 0-0 5 | Radionuclides Metals | Alpha Spec 6010 |
| West Area | | A10 | AK56-000 | 2074344 774 | 752667 042 | 0-0 5 | Radionuclides Metals | Alpha Spec 6010 |
| West Area | | A10 | A10-N1 | 2074316 013 | 753534 324 | 0-0 5 | Radionuclides Metals | Alpha Spec 6010 |
| West Area | 1 | A10 | A10-N2 | 2074316 013 | 754106 324 | 0-0 \$ | Radionuclides Metals | Alpha Spec 6010 |
| West Area | | A10 | A10-S1 | 2074328 805 | 751246 324 | 0-0 5 | Radionuclides Metals | Alpha Spec 6010 |
| West Area | | A10 | A10-S2 | 2074341 597 | 751818 324 | 9-0 | Radionuclides Metals | Alpha Spec 6010 |
| West Area | | B12 | AM67-000 | 2074869 534 | 754876 866 | 0-0 \$ | Radionuclides Metals | Alpha Spec 6010 |
| West Area | | B12 | B12-NE | 2075383 261 | 755160 779 | 0-0 5 | Radionuclides Metals | Alpha Spec 6010 |
| West Area | | B12 | B12-NW | 2074405 557 | 755147 987 | 0-0 5 | Radionuclides Metals | Alpha Spec 6010 |
| | | | | | | | | |

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| Ambyffall Melfod | Alpha Spec 6010 |
|--------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| Analyte | Radionuclides Metals |
| Depth Interval (feet) | 9-0 | 9-0 | 0-0 5 | 0-0 5 | 9-0-0 | 9-0 | 9-0-0 | 9-0 | 0-0 \$ | 0-0 \$ | 0-0 \$ | 0-0 5 | 0-0 \$ | 0-0 \$ | 0-0 5 |
| Northing | 754678 324 | 754652 739 | 748093 500 | 748386 324 | 748386 324 | 747814 324 | 747882 946 | 749236 500 | 749530 324 | 749530 324 | 748958 324 | 748958 324 | 750379 500 | 750674 324 | 750674 324 |
| Easting | 2075396 053 | 2074418 349 | 2075116 500 | 2075396 053 | 2074824 053 | 2075396 053 | 2074824 053 | 2075116 500 | 2075396 053 | 2074824 053 | 2075327 431 | 2074824 053 | 2075116 500 | 2075396 053 | 2074824 053 |
| Location Code | B12-SE | B12-SW | AN33-000 | B6-NE | B6-NW | B6-SE | B6-SW | AN39-000 | B7-NE | B7-NW | B7-SE | B7-SW | AN45-000 | B8-NE | B8-NW |
| Cell Number | B12 | B12 | B6 | B6 | B6 | B6 | B6 | B7 | B7 | B7 | B7 | B7 | B8 | B8 | B8 |
| Exposure Unit | West Area |

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| Analytical Method | les Alpha Spec 6010 | les Alpha Spec 6010 | les Alpha Spec 6010 | les Alpha Spec 6010 | les Alpha Spec 6010 | les Alpha Spec 6010 | les Alpha Spec 6010 | les Alpha Spec 6010 | les Alpha Spec 6010 | les Alpha Spec 6010 | les Alpha Spec 6010 | les Alpha Spec 6010 | les Alpha Spec 6010 | les Alpha Spec 6010 | es Alpha Spec |
|--------------------------|-------------------------|-------------------------|------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| Analyte | Radionuclides Metals | Radionuclides Metals | Radionuclides Metals | Radionuclides Metals |
| Depth Interval (feet) | 9-0-0 | 9-0-0 | 9-0-0 | 9-0-0 | 9-0-0 | 9-0-0 | 9-0-0 | 0-0 \$ | 0-0 2 | 0-0 2 | 0-0 2 | 0-0 2 | 0-0 \$ | 0-0 \$ | 0-0 \$ |
| Northing | 750102 324 | 750102 324 | 751522 500 | 751818 324 | 751818 324 | 751246 324 | 751246 324 | 752665 500 | 752962 324 | 752879 977 | 752390 324 | 752390 324 | 753808 500 | 754106 324 | 754106 324 |
| Easting | 2075396 053 | 2074824 053 | 2075116 500 | 2075396 053 | 2074824 053 | 2075396 053 | 2074824 053 | 2075116 500 | 2075396 053 | 2074824 053 | 2075396 053 | 2074824 053 | 2075116 500 | 2075396 053 | 2074824 053 |
| Location Code | B8-SE | B8-SW | AN50-000 | B9-NE | B9-NW | B9-SE | B9-SW | AN56-000 | B10-NE | B10-NW | B10-SE | B10-SW | AN62-000 | B11-NE | B11-NW |
| Cell Number | B8 | B8 | В9 | В9 | В9 | В9 | В9 | B10 | B10 | B10 | B10 | B10 | B11 | B11 | B11 |
| Exposure Unit | West Area | West Area | West Area | West Area | West Area | West Area | West Area | West Area | West Area | West Area | West Area | West Area | West Area | West Area | West Area |

| Analytical Nethod # | Alpha Spec 6010 |
|------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| Analyte | Radionuclides Metals |
| Depth Interval | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 \$ | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 \$ | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 \$ |
| Northing | 753397 079 | 753548 048 | 750379 500 | 750674 324 | 750674 324 | 750102 324 | 750102 324 | 751522 500 | 751818 324 | 751818 324 | 751246 324 | 751246 324 | 752665 500 | 752962 324 | 752962 324 |
| Lasting | 2075464 675 | 2074892 675 | 2076259 500 | 2076540 053 | 2075968 053 | 2076540 053 | 2075968 053 | 2076259 500 | 2076540 053 | 2075968 053 | 2076540 053 | 2075968 053 | 2076259 500 | 2076540 053 | 2075968 053 |
| Focation Code | B11-SE | B11-SW | AT45-000 | C8-NE | C8-NW | C8-SE | C8-SW | AT50-000 | C9-NE | C9-NW | C9-SE | C9-SW | AT56-000 | C10-NE | C10-NW |
| Cell Number | B11 | B11 | 82 | C8 | 82 | 82 | C8 | 63 | 63 | 62 | 63 | 63 | C10 | C10 | C10 |
| Exposure Unit | West Area |

| Analytical Vieding | Alpha Spec 6010 |
|-----------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| Analyte | Radionuclides Metals |
| Depth Interval | 9-0-0 | 0-0 5 | 9-0-2 | 9-0-0 | 0-0 \$ | 0-0 \$ | 0-0 \$ | 0-0 \$ | 0-0 \$ | 9-0 \$ | 0-0 \$ | 0-0 \$ | 9-0 5 | 9-0 \$ | 0-0 \$ |
| Northing | 752390 324 | 752390 324 | 753808 016 | 754106 324 | 754106 324 | 753534 324 | 753534 324 | 754859 824 | 755173 571 | 755186 363 | 754627 155 | 754639 947 | 750379 500 | 750674 324 | 750674 324 |
| Day the | 2076540 053 | 2075968 053 | 2076259 037 | 2076540 053 | 2075968 053 | 2076540 053 | 2075968 053 | 2076223 822 | 2076540 053 | 2075858 258 | 2076540 053 | 2075968 053 | 2077402 500 | 2077684 053 | 2077112 053 |
| Location Code | C10-SE | C10-SW | AT62-000 | C11-NE | C11-NW | C11-SE | C11-SW | AT67-000 | C12-NE | C12-NW | C12-SE | C12-SW | AZ45-000 | D8-NE | D8-NW |
| Cell Number | C10 | C10 | C11 | C11 | C11 | C11 | C11 | C12 | C12 | C12 | C12 | C12 | D8 | D8 | D8 |
| Exposure Unit | West Area | Inter Dramage | Inter Dramage | Inter Dramage |

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| Analytical Nettod | Alpha Spec 6010 |
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| Analyte | Radionuclides Metals |
| Depth Interval | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 | 9-0 2 | 0-0 \$ | 0-0 5 | 0-0 5 | 0-0 \$ | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 |
| Noething | 750102 324 | 750102 324 | 751522 500 | 751818 324 | 751818 324 | 751246 324 | 751246 324 | 751522 500 | 751818 324 | 751818 324 | 751246 324 | 751246 324 | 752596 878 | 752962 324 | 752962 324 |
| Easing | 2077684 053 | 2077112 053 | 2078545 500 | 2078828 053 | 2078256 053 | 2078828 053 | 2078256 053 | 2079688 500 | 2079972 053 | 2079400 053 | 2079972 053 | 2079400 053 | 2079743 398 | 2079972 053 | 2079400 053 |
| Location Code | D8-SE | D8-SW | BF50-000 | E9-NE | E9-NW | E9-SE | E9-SW | BK50-000 | F9-NE | F9-NW | F9-SE | F9-SW | BL56-000 | F10-NE | F10-NW |
| Cell Number | D8 | D8 | E9 | E9 | E9 | E9 | E9 | F9 | F9 | F9 | F9 | F9 | F10 | F10 | F10 |
| Exposure Unit | Inter Drainage | Inter Dramage | Inter Drainage | Inter Dramage | Inter Dramage | Inter Drainage | Inter Dramage |

| Amalytical Vediod | Alpha Spec 6010 | Alpha Spec 6010 | Alpha Spec 6010 | Alpha Spec 6010 | Alpha Spec 6010 | Alpha Spec 6010 | Alpha Spec 6010 | Alpha Spec 6010 | Alpha Spec 6010 | Alpha Spec 6010 | Alpha Spec 6010 | Alpha Spec 6010 | Alpha Spec 6010 | Alpha Spec 6010 | Alpha Spec 6010 |
|----------------------|-------------------------|-------------------------|-------------------------|------------------------|-------------------------|------------------------|-------------------------|------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| Analyte | Radionuclides Metals | Radionuclides Metals | Radionuclides Metals | Radionuchdes Metals | Radionuclides Metals | Radionuchdes Metals | Radionuclides Metals | Radionuchdes Metals | Radionuclides Metals |
| Depth Interval | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 | 9-0 5 | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 |
| Norming 2 | 752390 324 | 752390 324 | 752665 500 | 752962 324 | 752962 324 | 752390 324 | 752390 324 | 753753 602 | 754106 324 | 754106 324 | 753534 324 | 753479 426 | 754865 748 | 755346 394 | 755252 215 |
| r Dasing. | 2079972 053 | 2079400 053 | 2080831 500 | 2081116 053 | 2080544 053 | 2081116 053 | 2080544 053 | 2082029 398 | 2082260 053 | 2081688 053 | 2082260 053 | 2081688 053 | 2083100 473 | 2083417 777 | 2082801 784 |
| Location Code | F10-SE | F10-SW | BQ56-001 | G10-NE | G10-NW | G10-SE | G10-SW | BW61-000 | H11-NE | H11-NW | H11-SE | H11-SW | CB67-000 | 112-NE | I12-NW |
| Cells Number | F10 | F10 | G10 | G10 | G10 | G10 | G10 | H11 | H11 | H11 | H11 | H11 | 112 | 112 | 112 |
| Exposure Unit | Inter Drainage | Inter Dramage | Inter Dramage | Inter Dramage | Inter Dramage | Inter Dramage | Inter Dramage | Inter Dramage | Inter Dramage | Inter Drainage | Inter Drainage | Inter Drainage | Inter Drainage | Inter Dramage | Inter Dramage |

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| Analytical Nethod | s Alpha Spec 6010 |
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| Analyte | Radionuclides Metals |
| Deptit Interval. | 0-0 5 | 0-0 5 | 0-0 | 9-0 | 9-0-0 | 9-0 | 0-0 \$ | 9-0 | 9-0 | 0-0 | 0-0 5 | 0-0 5 | 9-0 | 0-0 5 | 0-0 5 |
| Northing | 754678 324 | 754623 426 | 754951 500 | 755181 701 | 755181 701 | 754678 324 | 754678 324 | 756094 500 | 756394 324 | 756394 324 | 755822 324 | 755822 324 | 756094 500 | 756394 324 | 756394 324 |
| Lasing | 2083404 053 | 2082832 053 | 2084260 500 | 2084548 053 | 2083976 053 | 2084548 053 | 2083976 053 | 2085403 500 | 2085692 053 | 2085120 053 | 2085692 053 | 2085120 053 | 2086546 500 | 2086836 053 | 2086264 053 |
| Eccation Code | 112-SE | I12-SW | CH67-000 | J12-NE | J12-NW | J12-SE | J12-SW | CN73-000 | K13-NE | K13-NW | K13-SE | K13-SW | CT73-000 | L13-NE | L13-NW |
| Cell Number | 112 | 112 | J12 | J12 | J12 | J12 | J12 | K13 | K13 | K13 | K13 | K13 | L13 | L13 | L13 |
| Exposure Unit | Inter Dramage | Inter Draunage | Inter Dramage | Inter Dramage | Inter Dramage | Inter Draunage | Inter Dramage | Inter Dramage | Inter Dramage | Inter Drainage | Inter Drainage | Inter Dramage | Inter Draunage | Inter Draunage | Inter Drainage |

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| Analytical, Method | Alpha Spec 6010 |
|--|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| Analyte | Radionuclides Metals |
| Depth Interval | 0-0 5 | 0-0 \$ | 9-0-0 | 9-0-0 | 9-0-0 | 0-0 5 | 0-0 5 | 0-0 \$ | 0-0 5 | 0-0 5 | 0-0 5 | 9-0-0 | 0-0 5 | 9-0 5 | 0-0 5 |
| Northing | 755822 324 | 755822 324 | 757104 206 | 757346 443 | 757346 443 | 756902 363 | 756902 363 | 751522 500 | 751818 324 | 751818 324 | 751246 324 | 751246 324 | 752665 500 | 752962 324 | 752962 324 |
| A PERSONAL AND A PERS | 2086836 053 | 2086264 053 | 2087687 808 | 2087980 053 | 2087408 053 | 2087992 845 | 2087408 053 | 2077402 500 | 2077684 053 | 2077112 053 | 2077684 053 | 2077112 053 | 2077402 500 | 2077684 053 | 2077112 053 |
| Location Code | L13-SE | L13-SW | CY78-000 | M14-NE | M14-NW | M14-SE | M14-SW | AZ50-000 | D9-NE | MN-6Q | D9-SE | MS-6Q | AZ56-000 | D10-NE | D10-NW |
| Cell Number | F13 | L13 | M14 | M14 | M14 | M14 | M14 | 6Ω | 6О | 6О | 6О | D9 | D10 | D10 | D10 |
| Exposure Unit | Inter Dramage | Rock Creek Dramage | Rock Creek Dramage | Rock Creek Dramage | Rock Creek Dramage | Rock Creek Dramage | Rock Creek Dramage | Rock Creek Dramage | Rock Creek Dramage |

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| Analytical: Neikod | Alpha Spec 6010 |
|-----------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| Analyte | Radionuclides Metals |
| Depth Interval | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 | 9-0-0 | 0-0 5 | 0-0 5 | 0-0 2 | 0-0 \$ | 0-0 5 | 0-0 5 | 9-0-0 | 0-0 5 | 0-0 5 | 0-0 \$ |
| Northing | 752390 324 | 752390 324 | 753808 445 | 754106 324 | 754106 324 | 753534 324 | 753534 324 | 752665 500 | 752962 324 | 752962 324 | 752390 324 | 752390 324 | 753808 500 | 754106 324 | 754106 324 |
| Easting. | 2077684 053 | 2077112 053 | 2077402 555 | 2077684 053 | 2077112 053 | 2077684 053 | 2077112 053 | 2078545 500 | 2078828 053 | 2078256 053 | 2078828 053 | 2078256 053 | 2078545 500 | 2078828 053 | 2078256 053 |
| Location Code | D10-SE | D10-SW | AZ62-000 | D11-NE | D11-NW | D11-SE | D11-SW | BF56-000 | E10-NE | E10-NW | E10-SE | E10-SW | BF62-000 | E11-NE | E11-NW |
| Cell Number | D10 | D10 | D11 | D11 | D11 | D11 | D11 | E10 | E10 | E10 | E10 | E10 | E11 | E11 | E11 |
| Exposure Unit | Rock Creek Dramage |

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| Applytical Method | Alpha Spec 6010 | Alpha Spec 6010 | Alpha Spec 6010 |
|----------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|------------------------|-------------------------|
| Analyte | Radionuclides Metals | Radionuchdes Metals | Radionuclides Metals |
| Depth Interval | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 \$ | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 \$ | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 |
| Northing | 753534 324 | 753534 324 | 754933 093 | 755250 324 | 755250 324 | 754678 324 | 754678 324 | 753808 500 | 754106 324 | 754106 324 | 753534 324 | 753534 324 | 753808 500 | 754106 324 | 754106 324 |
| Easting | 2078828 053 | 2078256 053 | 2078586 020 | 2078828 053 | 2078256 053 | 2078828 053 | 2078256 053 | 2079688 500 | 2079972 053 | 2079400 053 | 2079972 053 | 2079400 053 | 2080831 500 | 2081116 053 | 2080544 053 |
| Location Code | E11-SE | E11-SW | BF67-000 | E12-NE | E12-NW | E12-SE | E12-SW | BK62-000 | F11-NE | F11-NW | F11-SE | F11-SW | BQ62-000 | G11-NE | G11-NW |
| Cell Number | E11 | E11 | E12 | E12 | E12 | E12 | E12 | F11 | F11 | F11 | F11 | F11 | G11 | G11 | G11 |
| Exposure Unit | Rock Creek Dramage | Rock Creek Dramage | Rock Creek Dramage |

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| Analytical | Alpha Spec 6010 |
|----------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| Analyte A | Radionuclides Metals |
| Depth Interval | 9-0-0 | 0-0 5 | 0-0 5 | 9-0 | 9 0-0 | <i>\$</i> 0-0 | <i>5</i> 0-0 | <i>§</i> 0-0 | 9-0 | <i>§</i> 0-0 | 0-0 5 | 9-0-0 | <i>5</i> 0-0 | <i>\$</i> 0-0 | 0-0 5 |
| Northigi | 753465 701 | 753534 324 | 754951 500 | 755250 324 | 755250 324 | 754678 324 | 754678 324 | 754951 500 | 755250 324 | 755250 324 | 754678 324 | 754678 324 | 757202 335 | 757538 324 | 757538 324 |
| - Basting | 2081116 053 | 2080544 053 | 2080831 500 | 2081116 053 | 2080544 053 | 2081116 053 | 2080544 053 | 2081974 500 | 2082260 053 | 2081688 053 | 2082260 053 | 2081688 053 | 2081972 013 | 2082260 053 | 2081688 053 |
| Location Code | G11-SE | G11-SW | BQ67-000 | G12-NE | G12-NW | G12-SE | G12-SW | BW67-000 | H12-NE | H12-NW | H12-SE | H12-SW | 000-6LMB | H14-NE | H14-NW |
| Cell Number | G11 | G11 | G12 | G12 | G12 | G12 | G12 | H12 | H12 | H12 | H12 | H12 | H14 | H14 | H14 |
| Exposure Unit | Rock Creek Dramage |

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| Analytical | Alpha Spec | 6010 Alpha Spec | 6010 Alpha Spec | 6010 | 6010 | Alpha Spec | Alpha Spec | Alpha Spec | 6010 | Aupna Spec 6010 | Alpha Spec | Alpha Spec | Alpha Spec | Alpha Spec | 6010 | Alpha Spec | 6010 | 6010 6010 | Alpha Spec 6010 |
|----------------|--------------------|-------------------------|-------------------------|--------------------|------------|-------------------------|--------------------|--------------------|--------------------|--------------------|-------------------------|---------------------|--------------------|--------------------|-----------------|--------------------|--------------------|--------------|-------------------------|
| Analyte | Radionuclides | Metals Radionuclides | Metals Radionuclides | Metals | Metals | Radionuclides Metals | Radionuclides | Radionuclides | Metals | Metals | Radionuclides Metals | Radionuclides | Radionuclides | Radionichdes | Metals | Radionuclides | Metals | Metals | Radionuclides Metals |
| Depth Interval | 0-0.5 | 0-0 5 | 0-0 \$ | 0 0 | 0-0.5 | 0-0 5 | 0-0 5 | 0-0 \$ | | 0-0.5 | 0-0 \$ | 0-0 \$ | 0-0 \$ | 300 | 0-0 | 0-0 \$ | 300 | 0-0.3 | 0-0 5 |
| Northing | 756966 324 | 756966 324 | 756094 500 | 756304 334 | +7C +6c0c1 | 756394 324 | 755822 324 | 755822 324 | 757100 142 | /2/106 143 | 757538 324 | 757538 324 | 756966 324 | 756966 324 | L COCOC: | 756094 500 | 756304 334 | +7C +/CCC1 | 756394 324 |
| Easting | 2082260 053 | 2081688 053 | 2083117 500 | 2083404 053 | | 2082832 053 | 2083404 053 | 2082832 053 | 2083115 074 | +1/20110007 | 2083404 053 | 2082832 053 | 2083404 053 | 2082832 053 | | 2084260 500 | 2084548 053 | | 2083976 053 |
| Location Code | H14-SE | H14-SW | CB73-000 | 113-NE | | I13-NW | I13-SE | I13-SW | CB79-000 | | I14-NE | I14-NW | I14-SE | I14-SW | | CH73-000 | J13-NE | | J13-NW |
| Cell Number | | H14 | 113 | 113 | i | 113 | II3 | 113 | 114 | | 114 | 114 | 114 | 114 | | 113 | J13 | | JI3 |
| Exposure Unit | Rock Creek Dramage | Rock Creek Dramage | Rock Creek Dramage | Rock Creek Dramage | | Rock Creek Drainage | Rock Creek Dramage | Rock Creek Dramage | Rock Creek Dramage | 7 | Rock Creek Drainage | Rock Creek Drainage | Rock Creek Dramage | Rock Creek Dramage | £ | Kock Creek Dramage | Rock Creek Dramage | | Kock Creek Dramage |

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| Analytical Method | Alpha Spec 6010 |
|--------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| Analyte | Radionuclides Metals |
| Depth Interval (feet) | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 \$ | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 |
| re Northing | 755822 324 | 755822 324 | 757231 324 | 757538 324 | 757538 324 | 756966 324 | 756966 324 | 757237 500 | 757538 324 | 757538 324 | 756966 324 | 756966 324 | 757219 568 | 757538 324 | 757538 324 |
| Pasting | 2084548 053 | 2083976 053 | 2084265 706 | 2084548 053 | 2083976 053 | 2084548 053 | 2083976 053 | 2085403 500 | 2085692 053 | 2085120 053 | 2085692 053 | 2085120 053 | 2086532 547 | 2086836 053 | 2086264 053 |
| Location Code | J13-SE | J13-SW | CH79-000 | J14-NE | J14-NW | J14-SE | J14-SW | CN79-000 | K14-NE | K14-NW | K14-SE | K14-SW | CS79-000 | L14-NE | L14-NW |
| Cell:Number Location Co | 113 | 113 | J14 | J14 | J14 | J14 | J14 | K14 | K14 | K14 | K14 | K14 | L14 | L14 | L14 |
| Exposure Unit | Rock Creek Dramage |

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| Analytical Mediot | Alpha Spec 6010 | Alpha Spec 6010 | Alpha Spec 6010 | Alpha Spec 6010 | Alpha Spec 6010 | Alpha Spec 6010 | Alpha Spec 6010 | Alpha Spec 6010 | Alpha Spec 6010 | Alpha Spec 6010 | Alpha Spec 6010 | Alpha Spec 6010 | Alpha Spec 6010 | Alpha Spec 6010 | Alpha Spec 6010 |
|----------------------|-------------------------|-------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|
| Analyte | Radionuclides Metals | Radionuclides Metals | Radionuclides Metals | Radionuclides Metals | Radionuclides Metals | Radionuclides Metals | Radionuclides Metals | Radionuclides Metals | Radionuclides Metals | Radionuclides Metals | Radionuclides Metals | Radionuclides Metals | Radionuclides Metals | Radionuclides Metals | Radionuclides Metals |
| Depth Interval | 0-0 \$ | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 \$ | 0-0 \$ | 0-0 5 | 0-0 \$ | 5 0-0 | 0-0 \$ | 0-0 5 | 0-0 5 | 0-0 2 | 0-0 5 |
| Northings | 756966 324 | 756966 324 | 743522 325 | 743810 324 | 743810 324 | 743238 324 | 743238 324 | 742555 239 | 742743 076 | 742768 660 | 742333 731 | 742333 731 | 743521 500 | 743810 324 | 743810 324 |
| Easting | 2086836 053 | 2086264 053 | 2078624 429 | 2078879 221 | 2078307 221 | 2078879 221 | 2078307 221 | 2079159 144 | 2079719 853 | 2078585 005 | 2079729 005 | 2078588 645 | 2079688 500 | 2079972 053 | 2079400 053 |
| Location Code | L14-SE | L14-SW | BF10-000 | E2-NE | E2-NW | E2-SE | E2-SW | BI05-000 | E1-NE | E1-NW | E1-SE | E1-SW | BK10-000 | F2-NE | F2-NW |
| Cell Number | L14 | L14 | E2 | E2 | E2 | E2 | E2 | EI | Ħ | E1 | E1 | B1 | F2 | F2 | F2 |
| Exposure Unit | Rock Creek Dramage | Rock Creek Dramage | Southwest Buffer Zone Area |

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| F2-SE 2079972 053 |
|----------------------|
| F2-SW 2079400 053 |
| BQ10-000 2080831 500 |
| G2-NE 2081116 053 |
| G2-NW 2080544 053 |
| G2-SE 2081116 053 |
| G2-SW 2080544 053 |
| BT05-000 2081402 326 |
| G1-NE 2081969 477 |
| G1-NW 2080847 421 |
| G1-SE 2081991 421 |
| G1-SW 2080863 853 |
| BW10-000 2081974 500 |
| H2-NE 2082260 053 |
| H2-NW 2081688 053 |

| Armi vircal | Alpha Spec 6010 |
|--------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|
| Analyte | Radionuclides Metals |
| Dépih Interval (feet) | 0-0 5 | 0-0 5 | 9-0 | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 | 9-0-0 | 0-0 5 | 0-0 5 | 0-0 5 | 9-0-0 | 9-0 | 0-0 5 | 0-0 5 |
| Norming | 743238 324 | 743238 324 | 744664 500 | 745022 946 | 745022 946 | 744382 324 | 744382 324 | 743521 500 | 743810 324 | 743810 324 | 743238 324 | 743238 324 | 744664 500 | 744954 324 | 744954 324 |
| Easting | 2082260 053 | 2081688 053 | 2081974 500 | 2082260 053 | 2081688 053 | 2082260 053 | 2081688 053 | 2083117 500 | 2083404 053 | 2082832 053 | 2083404 053 | 2082832 053 | 2083117 500 | 2083404 053 | 2082832 053 |
| Location Code | H2-SE | H2-SW | BW16-000 | H3-NE | H3-NW | H3-SE | H3-SW | CB10-000 | 12-NE | I2-NW | 12-SE | I2-SW | CB16-000 | I3-NE | I3-NW |
| Cell Number | H2 | H2 | Н3 | Н3 | Н3 | H3 | H3 | 77 | 7. | 7. | 7.1 | 71 | 13 | EI | B |
| Exposure Unit | Southwest Buffer Zone Area |

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| Exposure Unit | Cell Number | Location Code | Easting | Northing . | Depth Interval | Andre | Analytical Method |
|----------------------------|-------------|---------------|-------------|------------|----------------|-------------------------|----------------------|
| Southwest Buffer Zone Area | 13 | 13-SE | 2083404 053 | 744382 324 | 9-0 | Radionuclides Metals | Alpha Spec 6010 |
| Southwest Buffer Zone Area | 13 | I3-SW | 2082832 053 | 744382 324 | 0-0 5 | Radionuclides Metals | Alpha Spec 6010 |
| Southwest Buffer Zone Area | 11 | CE05-000 | 2083690 956 | 742532 994 | 9-0-0 | Radionuclides Metals | Alpha Spec 6010 |
| Southwest Buffer Zone Area | 11 | II-NE | 2084270 269 | 742704 700 | 9-0 2 | Radionuclides Metals | Alpha Spec 6010 |
| Southwest Buffer Zone Area | 11 | II-NW | 2083126 269 | 742730 284 | 9-0-0 | Radionuclides Metals | Alpha Spec 6010 |
| Southwest Buffer Zone Area | 11 | II-SE | 2084266 629 | 742333 731 | 9-0-0 | Radionuclides Metals | Alpha Spec 6010 |
| Southwest Buffer Zone Area | 11 | II-SW | 2083122 629 | 742320 939 | 0-0 5 | Radionuclides Metals | Alpha Spec 6010 |
| Southwest Buffer Zone Area | J2 | CH10-000 | 2084260 500 | 743521 500 | 0-0 \$ | Radionuclides Metals | Alpha Spec 6010 |
| Southwest Buffer Zone Area | J2 | J2-NE | 2084548 053 | 743810 324 | 0-0 5 | Radionuclides Metals | Alpha Spec 6010 |
| Southwest Buffer Zone Area | J2 | J2-NW | 2083976 053 | 743810 324 | 0-0 5 | Radionuclides Metals | Alpha Spec 6010 |
| Southwest Buffer Zone Area | J2 | J2-SE | 2084548 053 | 743238 324 | 0-0 5 | Radionuclides Metals | Alpha Spec 6010 |
| Southwest Buffer Zone Area | J2 | J2-SW | 2083976 053 | 743238 324 | 9-0 \$ | Radionuclides Metals | Alpha Spec 6010 |
| Southwest Buffer Zone Area | J3 | CH16-000 | 2084260 500 | 744664 500 | 0-0 5 | Radionuclides Metals | Alpha Spec 6010 |
| Southwest Buffer Zone Area | J3 | J3-NE | 2084548 053 | 744954 324 | 0-0 5 | Radionuclides Metals | Alpha Spec 6010 |
| Southwest Buffer Zone Area | 13 | J3-NW | 2083976 053 | 744954 324 | 0-0 5 | Radionuclides Metals | Alpha Spec 6010 |

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| Analytical Wethod | Alpha Spec 6010 | Alpha Spec 6010 | Alpha Spec 6010 | Alpha Spec 6010 |
|---------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|-------------------------|-------------------------|-------------------------|
| Analyte | Radionuclides Metals | Radronuclides Metals | Radionuclides Metals | Radionuclides Metals | Radionuclides Metals | Radionuclides Metals | Radionuclides Metals |
| Depth Interval: (feet) | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 \$ | 0-0 5 | 0-0 5 | 0-0 5 |
| Northing | 744382 324 | 744382 324 | 743521 500 | 743810 324 | 743810 324 | 743238 324 | 743238 324 | 744664 500 | 745009 221 | 745009 221 | 744382 324 | 744382 324 | 744665 244 | 744995 497 | 744995 497 |
| Easting | 2084548 053 | 2083976 053 | 2085403 500 | 2085692 053 | 2085120 053 | 2085692 053 | 2085120 053 | 2085403 500 | 2085692 053 | 2085120 053 | 2085692 053 | 2085120 053 | 2078620 585 | 2078892 013 | 2078320 013 |
| Location Code | 13-SE | J3-SW | CN10-000 | K2-NE | K2-NW | K2-SE | K2-SW | CN16-000 | K3-NE | K3-NW | K3-SE | K3-SW | BF16-000 | E3-NE | E3-NW |
| Cell Number | 13 | J3 | K2 | K2 | K2 | K2 | K2 | K3 | K3 | K3 | K3 | К3 | E3 | E3 | E3 |
| Exposure Unit | Southwest Buffer Zone Area | Upper Woman Dramage | Upper Woman Dramage | Upper Woman Dramage |

| Analytical | Alpha Spec 6010 |
|--------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| Analyte | Radionuclides Metals |
| Depth Interval (feet) | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 \$ |
| Northing | 744382 324 | 744382 324 | 745808 215 | 746098 324 | 746098 324 | 745520 597 | 745473 697 | 746954 434 | 747242 324 | 747173 701 | 746664 597 | 746670 324 | 744664 500 | 745022 946 | 745022 946 |
| Easting | 2078892 013 | 2078320 013 | 2078616 758 | 2078902 498 | 2078313 318 | 2078896 772 | 2078415 116 | 2078609 609 | 2078891 045 | 2078321 316 | 2078902 498 | 2078301 865 | 2079688 500 | 2079972 053 | 2079400 053 |
| Location Code | E3-SE | E3-SW | BF22-000 | E4-NE | E4-NW | E4-SE | E4-SW | BF27-000 | ES-NE | ES-NW | E5-SE | E5-SW | BK16-000 | F3-NE | F3-NW |
| Cell Number | E3 | E3 | E4 | E4 | E4 | 暑 | E4 | E5 | ES | ES | ES | ES | F3 | F3 | F3 |
| Exposure Unit | Upper Woman Dramage | Upper Woman Draunage | Upper Woman Dramage |

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| Exposure Unit | Cell Number | Location Code | Easting France | Northing | Depth Interval (feet) | Analyte | Analytical Method |
|----------------------|-------------|---------------|-------------------|------------|--------------------------|-------------------------|----------------------|
| Upper Woman Drainage | F3 | F3-SE | 2079972 053 | 744382 324 | S 0-0 | Radionuclides Metals | Alpha Spec 6010 |
| Upper Woman Drainage | F3 | F3-SW | 2079400 053 | 744382 324 | 9-0-0 | Radionuclides Metals | Alpha Spec 6010 |
| Upper Woman Drainage | G3 | BQ16-000 | 2080831 500 | 744664 500 | 9-0-0 | Radionuclides Metals | Alpha Spec 6010 |
| Upper Woman Drainage | G3 | G3-NE | 2081116 053 | 744995 497 | \$ 0-0 | Radionuclides Metals | Alpha Spec 6010 |
| Upper Woman Drainage | G3 | G3-NW | 2080544 053 | 744995 497 | 9-0-0 | Radionuclides Metals | Alpha Spec 6010 |
| Upper Woman Drainage | G3 | G3-SE | 2081116 053 | 744382 324 | 9-0-0 | Radionuclides Metals | Alpha Spec 6010 |
| Upper Woman Drainage | G3 | G3-SW | 2080544 053 | 744382 324 | 9-0-0 | Radionuclides Metals | Alpha Spec 6010 |
| Upper Woman Drainage | H4 | BW22-000 | 2081974 500 | 745807 500 | 0-0 5 | Radionuclides Metals | Alpha Spec 6010 |
| Upper Woman Drainage | H4 | H4-NE | 2082260 053 | 746098 324 | 0-0 5 | Radionuclides Metals | Alpha Spec 6010 |
| Upper Woman Dramage | H4 | H4-NW | 2081688 053 | 746098 324 | 0-0 5 | Radionuclides Metals | Alpha Spec 6010 |
| Upper Woman Drainage | H4 | H4-SE | 2082260 053 | 745526 324 | 0-0 5 | Radionuclides Metals | Alpha Spec 6010 |
| Upper Woman Drainage | H4 | H4-SW | 2081688 053 | 745526 324 | 0-0 5 | Radionuclides Metals | Alpha Spec 6010 |
| Upper Woman Drainage | 14 | CB22-000 | 2083117 500 | 745807 500 | 0-0 5 | Radionuclides Metals | Alpha Spec 6010 |
| Upper Woman Dramage | 14 | I4-NE | 2083404 053 | 746098 324 | 0-0 5 | Radionuclides Metals | Alpha Spec 6010 |
| Upper Woman Drainage | 14 | I4-NW | 2082832 053 | 746098 324 | 0-0 \$ | Radionuclides Metals | Alpha Spec 6010 |

| Analytical Method | Alpha Spec 6010 |
|----------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| Analyte | Radionuclides Metals |
| Depth Interval | 0-0 5 | 0-0 \$ | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 \$ | 0-0 5 | 0-0 \$ | 0-0 5 | 0-0 5 | 0-0 5 |
| Northing | 745526 324 | 745526 324 | 746950 500 | 747242 324 | 747242 324 | 746587 977 | 746546 804 | 745807 500 | 746098 324 | 746098 324 | 745526 324 | 745526 324 | 745807 500 | 746098 324 | 746098 324 |
| Easting | 2083404 053 | 2082832 053 | 2083117 500 | 2083404 053 | 2082832 053 | 2083404 053 | 2082832 053 | 2084260 500 | 2084548 053 | 2083976 053 | 2084548 053 | 2083976 053 | 2085403 500 | 2085692 053 | 2085120 053 |
| Location Code | I4-SE | I4-SW | CB27-000 | IS-NE | MN-SI | IS-SE | IS-SW | CH22-000 | J4-NE | J4-NW | J4-SE | J4-SW | CN22-000 | K4-NE | K4-NW |
| Cell Number | 14 | 14 | 15 | 15 | I5 | IS | 15 | J4 | J4 | J4 | J4 | J4 | K4 | K4 | K4 |
| Exposure Unit | Upper Woman Dramage | Upper Woman Dramage | Upper Woman Drainage | Upper Woman Dramage | Upper Woman Drainage | Upper Woman Dramage | Upper Woman Dramage | Upper Woman Dramage | Upper Woman Drainage | Upper Woman Dramage | Upper Woman Drainage |

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| Exposure Unit | Cell Number | Cell Number- Location Code | Easting | · Northing | Depth Interval (feet) | Analyte | Analytical Method |
|-----------------------|-------------|----------------------------|-------------|------------|--------------------------|-------------------------|----------------------|
| Upper Woman Drainage | K4 | K4-SE | 2085692 053 | 745526 324 | 9-0-2 | Radionuclides Metals | Alpha Spec 6010 |
| Upper Woman Dramage | K4 | K4-SW | 2085120 053 | 745526 324 | 0-0 5 | Radionuclides Metals | Alpha Spec 6010 |
| Industrial Area | G8 | BQ44-000 | 2080843 986 | 750342 042 | 0-0 5 | Radionuclides | Alpha Spec |
| Industrial Area | 89 | G8-NE | 2081116 053 | 750674 324 | 0-0 5 | Radionuclides | Alpha Spec |
| Industrial Area | 85 | G8-NW | 2080544 053 | 750674 324 | 0-0 5 | Radionuclides | Alpha Spec |
| Industrial Area | 85 | G8-SE | 2081116 053 | 750102 324 | 0-0 5 | Radionuclides | Alpha Spec |
| Industrial Area | 85 | MS-8D | 2080544 053 | 750102 324 | 0-0 5 | Radionuclides | Alpha Spec |
| No Name Gulch Dramage | 6Đ | ВQ50-000 | 2080904 362 | 751548 427 | 0-0 2 | Radionuclides | Alpha Spec |
| No Name Gulch Dramage | 6Đ | G9-NE | 2081228 428 | 751705 948 | 0-0 5 | Radionuclides | Alpha Spec |
| No Name Gulch Dramage | 6Đ | MN-65 | 2080544 053 | 751818 324 | 0-0 5 | Radionuclides | Alpha Spec |
| No Name Gulch Dramage | 6Đ | G9-SE | 2081290 859 | 751046 546 | 0-0 5 | Radionuclides | Alpha Spec |
| No Name Gulch Dramage | G9 | MS-6D | 2080469 136 | 751246 324 | 0-0 5 | Radionuclides | Alpha Spec |
| No Name Gulch Dramage | K11 | CN62-000 | 2085403 500 | 753808 500 | 0-0 5 | Radionuclides Metals | Alpha Spec 6010 |
| No Name Gulch Dramage | K11 | K11-NE | 2085692 053 | 754106 324 | 0-0 \$ | Radionuclides Metals | Alpha Spec 6010 |
| No Name Gulch Dramage | K11 | K11-NW | 2085120 053 | 754106 324 | 0-0 \$ | Radionuclides Metals | Alpha Spec 6010 |
| No Name Gulch Dramage | K11 | K11-SE | 2085692 053 | 753534 324 | 0-0 5 | Radionuclides Metals | Alpha Spec 6010 |

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| Analytical Method | Alpha Spec 6010 | Alpha Spec 6010 | Alpha Spec 6010 | Alpha Spec 6010 | Alpha Spec 6010 | Alpha Spec 6010 | Alpha Spec 6010 | Alpha Spec 6010 | Alpha Spec 6010 | Alpha Spec 6010 | Alpha Spec 6010 | Alpha Spec 6010 | Alpha Spec 6010 | Alpha Spec 6010 | Alpha Spec 6010 |
|----------------------|-------------------------|-------------------------|-------------------------|------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|------------------------|-------------------------|-------------------------|
| Analyte | Radionuclides Metals | Radionuclides Metals | Radionuclides Metals | Radionuchdes Metals | Radionuclides Metals | Radionuchdes Metals | Radionuclides Metals | Radionuclides Metals |
| Depth Interval | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 \$ | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 |
| Northing | 753534 324 | 754951 500 | 755209 150 | 755209 150 | 754678 324 | 754678 324 | 753808 500 | 754106 324 | 754106 324 | 753534 324 | 753534 324 | 754951 500 | 755250 324 | 755250 324 | 754678 324 |
| F. Basting | 2085120 053 | 2085403 500 | 2085692 053 | 2085120 053 | 2085692 053 | 2085120 053 | 2086546 500 | 2086836 053 | 2086264 053 | 2086836 053 | 2086264 053 | 2086546 500 | 2086836 053 | 2086264 053 | 2086836 053 |
| Location Code | K11-SW | CN67-000 | K12-NE | K12-NW | K12-SE | K12-SW | CT62-000 | L11-NE | L11-NW | L11-SE | L11-SW | CT67-000 | L12-NE | L12-NW | L12-SE |
| Cell Number | K11 | K12 | K12 | K12 | K12 | K12 | L11 | L11 | L11 | L11 | L11 | L12 | L12 | L12 | L12 |
| Exposure Unit | No Name Gulch Dramage | No Name Gulch Dramage | No Name Gulch Dramage | No Name Gulch Dramage | No Name Gulch Dramage | No Name Gulch Dramage | No Name Gulch Dramage | No Name Gulch Dramage | No Name Gulch Dramage | No Name Gulch Dramage | No Name Gulch Dramage | No Name Gulch Dramage | No Name Gulch Dramage | No Name Gulch Dramage | No Name Gulch Dramage |

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| Analytical Method | Alpha Spec 6010 |
|----------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| Analyte | Radionuclides Metals |
| Depth Interval | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 |
| Northing | 754678 324 | 753808 500 | 754106 324 | 754106 324 | 753534 324 | 753534 324 | 754951 500 | 755250 324 | 755250 324 | 754678 324 | 754678 324 | 756094 500 | 756394 324 | 756394 324 | 755822 324 |
| Easting | 2086264 053 | 2087689 500 | 2087980 053 | 2087408 053 | 2087980 053 | 2087408 053 | 2087689 500 | 2087980 053 | 2087408 053 | 2087980 053 | 2087408 053 | 2087689 500 | 2087980 053 | 2087408 053 | 2087980 053 |
| Location Code | L12-SW | CY62-000 | M11-NE | M11-NW | M11-SE | M11-SW | CX67-000 | M12-NE | M12-NW | M12-SE | M12-SW | CY73-000 | M13-NE | M13-NW | M13-SE |
| Cell Number | L12 | M11 | M11 | M11 | M11 | M11 | M12 | M12 | M12 | M12 | M12 | M13 | M13 | M13 | M13 |
| Exposure Unit | No Name Gulch Dramage |

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| Exposure Unit | Cell Number | Location Code | Easting Control of the Control of th | Northing | Depth Interval (feet) | Analyte | Analytical Method |
|----------------------------|-------------|---------------|--|------------|--------------------------|-------------------------|----------------------|
| No Name Gulch Dramage | M13 | M13-SW | 2087408 053 | 755822 324 | 0-0 \$ | Radionuclides Metals | Alpha Spec 6010 |
| Southeast Buffer Zone Area | K1 | CQ05-000 | 2085977 020 | 742558 111 | 0-0 5 | Radionuclides Metals | Alpha Spec 6010 |
| Southeast Buffer Zone Area | K1 | K1-NE | 2086558 269 | 742691 908 | 0-0 5 | Radionuclides Metals | Alpha Spec 6010 |
| Southeast Buffer Zone Area | K1 | K1-NW | 2085410 629 | 742691 908 | 0-0 5 | Radionuclides Metals | Alpha Spec 6010 |
| Southeast Buffer Zone Area | K1 | K1-SE | 2086554 629 | 742320 939 | 0-0 5 | Radionuclides Metals | Alpha Spec 6010 |
| Southeast Buffer Zone Area | K1 | K1-SW | 2085414 269 | 742308 147 | 0-0 5 | Radionuclides Metals | Alpha Spec 6010 |
| Southeast Buffer Zone Area | L2 | CT10-000 | 2086546 500 | 743521 500 | 0-0 5 | Radionuclides Metals | Alpha Spec 6010 |
| Southeast Buffer Zone Area | 1.2 | L2-NE | 2086836 053 | 743810 324 | 0-0 \$ | Radionuclides Metals | Alpha Spec 6010 |
| Southeast Buffer Zone Area | L2 | L2-NW | 2086264 053 | 743810 324 | 0-0 5 | Radionuclides Metals | Alpha Spec 6010 |
| Southeast Buffer Zone Area | L2 | L2-SE | 2086836 053 | 743238 324 | 0-0 5 | Radionuclides Metals | Alpha Spec 6010 |
| Southeast Buffer Zone Area | L2 | L2-SW | 2086264 053 | 743238 324 | 0-0 5 | Radionuclides Metals | Alpha Spec 6010 |
| Southeast Buffer Zone Area | Г3 | CT16-000 | 2086546 500 | 744664 500 | 0-0 5 | Radionuclides Metals | Alpha Spec 6010 |
| Southeast Buffer Zone Area | Г3 | L3-NE | 2086836 053 | 744954 324 | 0-0 5 | Radionuclides Metals | Alpha Spec 6010 |
| Southeast Buffer Zone Area | Ľ3 | L3-NW | 2086264 053 | 744899 426 | 0-0 5 | Radionuclides Metals | Alpha Spec 6010 |
| Southeast Buffer Zone Area | L3 | L3-SE | 2086836 053 | 744382 324 | 0-0 5 | Radionuclides Metals | Alpha Spec 6010 |

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| Exposure Unit | Cell Number | Location Code | Fasting | Northing | Depth Inferval | Analyte | Analytical Method |
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| Southeast Buffer Zone Area | L3 | L3-SW | 2086264 053 | 744382 324 | 0-0 5 | Radionuclides Metals | Alpha Spec 6010 |
| Southeast Buffer Zone Area | M2 | CY10-000 | 2087689 500 | 743521 500 | 0-0 \$ | Radionuclides Metals | Alpha Spec 6010 |
| Southeast Buffer Zone Area | M2 | M2-NE | 2087980 053 | 743810 324 | 0-0 5 | Radionuclides Metals | Alpha Spec 6010 |
| Southeast Buffer Zone Area | M2 | M2-NW | 2087408 053 | 743810 324 | 0-0 5 | Radionuclides Metals | Alpha Spec 6010 |
| Southeast Buffer Zone Area | M2 | M2-SE | 2087980 053 | 743238 324 | 9-0-0 | Radionuclides Metals | Alpha Spec 6010 |
| Southeast Buffer Zone Area | M2 | M2-SW | 2087408 053 | 743238 324 | 0-0 5 | Radionuclides Metals | Alpha Spec 6010 |
| Southeast Buffer Zone Area | M3 | CY16-000 | 2087689 500 | 744664 500 | 0-0 5 | Radionuclides Metals | Alpha Spec 6010 |
| Southeast Buffer Zone Area | M3 | M3-NE | 2087980 053 | 744954 324 | 0-0 5 | Radionuclides Metals | Alpha Spec 6010 |
| Southeast Buffer Zone Area | M3 | M3-NW | 2087408 053 | 744954 324 | 0-0 5 | Radionuclides Metals | Alpha Spec 6010 |
| Southeast Buffer Zone Area | M3 | M3-SE | 2087980 053 | 744382 324 | 0-0 5 | Radionuclides Metals | Alpha Spec 6010 |
| Southeast Buffer Zone Area | M3 | M3-SW | 2087408 053 | 744382 324 | 0-0 5 | Radionuclides Metals | Alpha Spec 6010 |
| Southeast Buffer Zone Area | M1 | DB06-000 | 2088262 438 | 742572 691 | 0-0 5 | Radionuclides Metals | Alpha Spec 6010 |
| Southeast Buffer Zone Area | M1 | M1-NE | 2088838 468 | 742737 720 | 0-0 5 | Radionuclides Metals | Alpha Spec 6010 |
| Southeast Buffer Zone Area | M1 | M1-NW | 2087687 668 | 742737 720 | 0-0 5 | Radionuclides Metals | Alpha Spec 6010 |
| Southeast Buffer Zone Area | M1 | M1-SE | 2088841 038 | 742356 940 | 0-0 \$ | Radionuclides Metals | Alpha Spec 6010 |

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| Analytical Nethod | Alpha Spec 6010 | 6010 | 6010 | 6010 | 6010 | 6010 |
|--------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|
| Analyte | Radionuclides Metals | Metals | Metals | Metals | Metals | Metals |
| Depth Interval (feet) | 0-0 \$ | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 |
| Northing | 742360 339 | 743521 500 | 743810 324 | 743810 324 | 743238 324 | 743238 324 | 744664 500 | 744954 324 | 744954 324 | 744382 324 | 744382 324 | 743521 500 | 743810 324 | 743810 324 | 743238 324 | 743238 324 |
| Essing : | 2087690 238 | 2088832 500 | 2089124 053 | 2088552 053 | 2089124 053 | 2088552 053 | 2088832 500 | 2089124 053 | 2088552 053 | 2089124 053 | 2088552 053 | 2089975 500 | 2090268 053 | 2089696 053 | 2090268 053 | 2089696 053 |
| Location Gode | M1-SW | DE10-000 | N2-NE | N2-NW | N2-SE | N2-SW | DE16-000 | N3-NE | N3-NW | N3-SE | N3-SW | DK10-000 | O2-NE | O2-NW | O2-SE | 02-SW |
| Cell Number Location Co | M1 | N2 | N2 | N2 | N2 | N2 | N3 | N3 | N3 | N3 | N3 | 02 | 02 | 02 | 02 | 02 |
| Exposure Unit | Southeast Buffer Zone Area |

| Analytical Method | Alpha Spec 6010 | Alpha Spec 6010 | Alpha Spec 6010 | Alpha Spec 6010 | 6010 | 6010 | 6010 | 6010 | 6010 | Alpha Spec 6010 | 6010 | 6010 |
|----------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|---------------------|----------------------|
| Analyte | Radionuclides Metals | Radionuclides Metals | Radionuclides Metals | Radionuclides Metals | Metals | Metals | Metals | Metals | Metals | Radionuclides Metals | Radionuclides Metals | Radionuclides Metals | Radionuclides Metals | Radionuclides Metals | Metals | Metals |
| Depth Interval | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 2 |
| Northing | 743810 324 | 743810 324 | 743238 324 | 743238 324 | 744610 491 | 744954 324 | 744954 324 | 744382 324 | 744382 324 | 746950 500 | 747242 324 | 747242 324 | 746684 048 | 746684 048 | 746950 500 | 747242 324 |
| · Æsting | 2093700 053 | 2093128 053 | 2093700 053 | 2093128 053 | 2093419 442 | 2093700 053 | 2093128 053 | 2093700 053 | 2093128 053 | 2088832 500 | 2089124 053 | 2088552 053 | 2089220 124 | 2088648 124 | 2089975 500 | 2090268 053 |
| Location Code | R2-NE | R2-NW | R2-SE | R2-SW | EB16-000 | R3-NE | R3-NW | R3-SE | R3-SW | DE27-000 | NS-NE | NS-NW | NS-SE | NS-SW | DK27-000 | OS-NE |
| Cell Number | R2 | R2 | R2 | R2 | R3 | R3 | R3 | R3 | R3 | N5 | NS | N5 | NS | NS | 05 | 0.5 |
| Exposure Unit | Southeast Buffer Zone Area | Lower Woman Dramage | Lower Woman Drainage | Lower Woman Dramage | Lower Woman Dramage | Lower Woman Dramage | Lower Woman Dramage | Lower Woman Drainage |

| Analytical Method | 6010 | 6010 | 6010 | 6010 | 6010 | 6010 | 6010 | 6010 | Alpha Spec |
|--------------------------|---------------------|----------------------|----------------------|---------------------|----------------------|---------------------|---------------------|---------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| al Analyte | Metals | Metals | Metals | Metals | Metals | Metals | Metals | Metals | Radionuclides |
| Depth Interval | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 |
| Northing | 747242 324 | 746670 324 | 746670 324 | 744664 500 | 744954 324 | 744954 324 | 744374 894 | 744382 324 | 748031 069 | 748436 268 | 748386 324 | 747814 324 | 747814 324 | 751522 500 | 751818 324 | 751818 324 | 751246 324 |
| Başting | 2089696 053 | 2090268 053 | 2089696 053 | 2091118 500 | 2091412 053 | 2090840 053 | 2091367 474 | 2090840 053 | 2088832 500 | 2089136 539 | 2088552 053 | 2089198 970 | 2088552 053 | 2091118 500 | 2091412 053 | 2090840 053 | 2091412 053 |
| Location Code | WN-SO | O5-SE | 05-SW | DP16-000 | P3-NE | P3-NW | P3-SE | P3-SW | DE33-000 | N6-NE | MN-9N | N6-SE | MS-9N | DP50-000 | P9-NE | WN-64 | P9-SE |
| Cell Number Location Coo | 90 | 05 | 05 | P3 | P3 | P3 | P3 | P3 | 9N | 9N | 9N | 9N | 9N | P9 | Ь9 | 6d | P9 |
| Exposure Unit | Lower Woman Dramage | Lower Woman Drainage | Lower Woman Drainage | Lower Woman Dramage | Lower Woman Drainage | Lower Woman Dramage | Lower Woman Dramage | Lower Woman Dramage | Wind Blown Area |

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| Analytical Method | Alpha Spec | 6010 | 6010 | 6010 | 6010 | 6010 | Alpha Spec 6010 |
|--------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|----------------------|----------------------|-----------------------|----------------------|----------------------|-------------------------|
| Analyte | Radionuclides | Metals | Metals | Metals | Metals | Metals | Radionuclides Metals |
| Depth Interval (feet) | 0-0 5 | 0-0 5 | 0-0 5 | 0-05 | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 |
| Northing | 751246 324 | 751522 630 | 751818 324 | 751818 324 | 751246 324 | 751246 324 | 752673 260 | 752945 757 | 752945 757 | 752373 757 | 752373 757 | 752606 062 | 752962 324 | 752962 324 | 752390 324 | 752390 324 | 752665 500 |
| Tasting | 2090840 053 | 2093377 760 | 2093700 053 | 2093128 053 | 2093700 053 | 2093128 053 | 2093388 918 | 2093674 695 | 2093102 695 | 2093674 695 | 2093102 695 | 2086546 500 | 2086836 053 | 2086264 053 | 2086836 053 | 2086264 053 | 2087689 500 |
| Location Code | MS-6d | EB50-000 | R9-NE | R9-NW | R9-SE | R9-SW | EB56-000 | R10-NE | R10-NW | R10-SE | R10-SW | CT56-000 | L10-NE | L10-NW | L10-SE | L10-SW | CY56-000 |
| Cell Number | | R9 | R9 | R9 | R9 | R9 | R10 | R10 | R10 | R10 | R10 | L10 | L10 | L10 | L10 | L10 | M10 |
| Exposure Unit | Wind Blown Area | Upper Walnut Dramage | Upper Walnut Dramage | Upper Walnut Drainage | Upper Walnut Dramage | Upper Walnut Dramage | Upper Walnut Dramage |

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| | Exposure Unit | Cell Number Eocation Co. | le | . Basting | Northing | Depth Interval (feet) | Analyte | Analytical Method |
|---|-----------------------|--------------------------|----------|-------------|------------|--------------------------|-------------------------|----------------------|
| M10 M10-NW 2087408 053 752962 324 0-0 5 Radiomuclides Metals M10 M10-SW 2087952 604 752472 670 0-0 5 Radiomuclides Metals M10 M10-SW 2087353 155 752376 599 0-0 5 Radiomuclides Metals N9 DE50-000 2088493 784 751555 248 0-0 5 Radiomuclides N9 N9-NW 2088483 878 751752 828 0-0 5 Radiomuclides N9 N9-NW 2088483 878 751230 773 0-0 5 Radiomuclides N9 N9-SW 2089118 309 751230 773 0-0 5 Radiomuclides N9 N9-SW 2088483 878 751230 773 0-0 5 Radiomuclides N10 DE56-000 2088832 500 752239 734 0-0 5 Metals N10 N10-NW 2088552 053 752390 324 0-0 5 Metals N10 N10-SE 2089124 053 752390 324 0-0 5 Metals N11 N11-NE 2088552 053 752390 324 0 | Upper Walnut Drannage | M10 | M10-NE | 2087980 053 | 752962 324 | | Radionuclides Metals | Alpha Spec 6010 |
| M10 M10-SE 2087952 604 752472 670 0-0 5 Radiomuclides Metals M10 M10-SW 2087353 155 752376 599 0-0 5 Radiomuclides Metals N9 DE50-000 2088799 784 751555 248 0-0 5 Radiomuclides Metals N9 N9-NE 2089105 823 751890 176 0-0 5 Radiomuclides N9 N9-NW 208918 378 751752 828 0-0 5 Radiomuclides N9 N9-SE 2089118 309 751230 773 0-0 5 Radiomuclides N9 N9-SW 2088546 309 751230 773 0-0 5 Radiomuclides N10 DE56-00 2088546 309 751230 773 0-0 5 Metals N10 N10-NE 2089064 615 752962 324 0-0 5 Metals N10 N10-NW 2089552 053 752962 324 0-0 5 Metals N10 N10-SW 2089552 053 752390 324 0-0 5 Metals N11 N11-NW 20889552 053 754106 324 0-0 5 <td>Upper Walnut Drainage</td> <td>M10</td> <td>M10-NW</td> <td>2087408 053</td> <td>752962 324</td> <td>9-0</td> <td>Radionuclides Metals</td> <td>Alpha Spec 6010</td> | Upper Walnut Drainage | M10 | M10-NW | 2087408 053 | 752962 324 | 9-0 | Radionuclides Metals | Alpha Spec 6010 |
| M10 M10-SW 2087353 155 752376 599 0-0 5 Radiomuclides Metals N9 DE50-000 2088799 784 751555 248 0-0 5 Radiomuclides N9 N9-NE 2089105 823 751890 176 0-0 5 Radiomuclides N9 N9-NW 2088483 878 751752 828 0-0 5 Radiomuclides N9 N9-SW 2089118 309 751230 773 0-0 5 Radiomuclides N9 N9-SW 2088148 378 751230 773 0-0 5 Radiomuclides N10 DE56-000 2088832 500 752739 788 0-0 5 Metals N10 N10-NE 2089064 615 752962 324 0-0 5 Metals N10 N10-NE 2089124 053 752390 324 0-0 5 Metals N10 N10-SW 2088552 053 752390 324 0-0 5 Metals N11 DE62-000 2088832 500 753300 324 0-0 5 Metals N11 N11-NE 2089124 053 754106 324 0-0 5 Meta | Upper Walnut Dramage | M10 | M10-SE | 2087952 604 | 752472 670 | <i>S</i> 0-0 | Radionuclides Metals | Alpha Spec 6010 |
| N9 DE50-000 2088799 784 751555 248 0-0 5 Radiomucides N9 N9-NE 2089105 823 751890 176 0-0 5 Radiomucides N9 N9-NW 2088483 878 751230 773 0-0 5 Radiomucides N9 N9-SW 2088118 309 751230 773 0-0 5 Radiomucides N10 N9-SW 2088546 309 751230 773 0-0 5 Radiomucides N10 DE56-000 2088832 500 752739 798 0-0 5 Metals N10 N10-NW 2088532 053 752962 324 0-0 5 Metals N10 N10-NW 2088552 053 752390 324 0-0 5 Metals N10 N10-SW 2088522 053 752390 324 0-0 5 Metals N11 DE62-000 2088832 500 753808 500 0-0 5 Metals N11 N11-NW 208952 053 754106 324 0-0 5 Metals N11 N11-NW 208952 053 754106 324 0-0 5 Metals </td <td>Upper Walnut Dramage</td> <td>M10</td> <td>M10-SW</td> <td>2087353 155</td> <td>752376 599</td> <td>S 0-0</td> <td>Radionuclides Metals</td> <td>Alpha Spec 6010</td> | Upper Walnut Dramage | M10 | M10-SW | 2087353 155 | 752376 599 | S 0-0 | Radionuclides Metals | Alpha Spec 6010 |
| N9 N9-NE 2089105 823 751890 176 0-0 5 Radionuclides N9 N9-NW 2088483 878 751752 828 0-0 5 Radionuclides N9 N9-SE 2089118 309 751230 773 0-0 5 Radionuclides N10 N9-SW 2088546 309 751230 773 0-0 5 Radionuclides N10 DE56-000 2088832 500 752739 798 0-0 5 Metals N10 N10-NW 2088552 053 752962 324 0-0 5 Metals N10 N10-SW 2088552 053 752390 324 0-0 5 Metals N10 N10-SW 2088552 053 752390 324 0-0 5 Metals N11 DE62-000 2088552 053 752390 324 0-0 5 Metals N11 N11-NW 2088552 053 754106 324 0-0 5 Metals N11 N11-NW 2088552 053 754106 324 0-0 5 Metals | Upper Walnut Dramage | 6N | DE50-000 | 2088799 784 | 751555 248 | 9-0-0 | Radionuclides | Alpha Spec |
| N9 N9-NW 2088483 878 751752 828 0-0 5 Radionuclides N9 N9-SE 2089118 309 751230 773 0-0 5 Radionuclides N9 N9-SW 2088546 309 751230 773 0-0 5 Radionuclides N10 N9-SW 2088632 500 752739 798 0-0 5 Metals N10 N10-NE 2089064 615 752962 324 0-0 5 Metals N10 N10-NW 2088552 053 752962 324 0-0 5 Metals N10 N10-SW 2089124 053 752390 324 0-0 5 Metals N11 DE62-000 2088552 053 752390 324 0-0 5 Metals N11 DE62-000 2088532 500 753808 500 0-0 5 Metals N11 N11-NW 2089124 053 754106 324 0-0 5 Metals N11 N11-NW 2088552 053 754106 324 0-0 5 Metals | Upper Walnut Dramage | 6N | N9-NE | 2089105 823 | 751890 176 | <i>9</i> 0-0 | Radionuclides | Alpha Spec |
| N9 N9-SE 2089118 309 751230 773 0-0 5 Radionuclides N10 N9-SW 2088546 309 751230 773 0-0 5 Radionuclides N10 DE56-000 2088832 500 752739 798 0-0 5 Metals N10 N10-NE 2089064 615 752962 324 0-0 5 Metals N10 N10-SE 2089124 053 752390 324 0-0 5 Metals N10 N10-SW 2088552 053 752390 324 0-0 5 Metals N11 DE62-000 2088832 500 753808 500 0-0 5 Metals N11 N11-NE 2089124 053 754106 324 0-0 5 Metals N11 N11-NW 2088552 053 754106 324 0-0 5 Metals | Upper Walnut Dramage | 6N | MN-6N | 2088483 878 | 751752 828 | <i>\$</i> 0-0 | Radionuclides | Alpha Spec |
| N9 N9-SW 2088546 309 751230 773 0-0 5 Radionuclides N10 DE56-000 2088832 500 752739 798 0-0 5 Metals N10 N10-NE 2089064 615 752962 324 0-0 5 Metals N10 N10-NW 2088552 053 752962 324 0-0 5 Metals N10 N10-SW 2089124 053 752390 324 0-0 5 Metals N10 N10-SW 2088552 053 752390 324 0-0 5 Metals N11 DE62-000 2088832 500 753808 500 0-0 5 Metals N11 N11-NW 2089124 053 754106 324 0-0 5 Metals N11 N11-NW 2088552 053 754106 324 0-0 5 Metals | Upper Walnut Dramage | 6N | N9-SE | 2089118 309 | 751230 773 | 9 0-0 | Radionuclides | Alpha Spec |
| N10 DE56-000 2088832 500 752739 798 0-0 5 Metals N10 N10-NW 2089064 615 752962 324 0-0 5 Metals N10 N10-NW 2088552 053 752962 324 0-0 5 Metals N10 N10-SE 2089124 053 752390 324 0-0 5 Metals N10 N10-SW 2088552 053 752390 324 0-0 5 Metals N11 DE62-000 2088832 500 753808 500 0-0 5 Metals N11 N11-NW 2089124 053 754106 324 0-0 5 Metals N11 N11-NW 2089552 053 754106 324 0-0 5 Metals | Upper Walnut Dramage | N9 | MS-6N | 2088546 309 | 751230 773 | 0-0 5 | Radionuclides | Alpha Spec |
| N10 N10-NE 2089064 615 752962 324 0-0 5 Metals N10 N10-NW 2088552 053 752962 324 0-0 5 Metals N10 N10-SE 2089124 053 752390 324 0-0 5 Metals N11 DE62-000 20888552 053 752390 324 0-0 5 Metals N11 DE62-000 2088832 500 753808 500 0-0 5 Metals N11 N11-NE 2089124 053 754106 324 0-0 5 Metals N11 N11-NW 2088552 053 754106 324 0-0 5 Metals | Upper Walnut Dramage | N10 | DE56-000 | 2088832 500 | 752739 798 | S 0-0 | Metals | 6010 |
| N10 N10-NW 2088552 053 752962 324 0-0 5 Metals N10 N10-SE 2089124 053 752390 324 0-0 5 Metals N10 N10-SW 2088552 053 752390 324 0-0 5 Metals N11 DE62-000 2088832 500 753808 500 0-0 5 Metals N11 N11-NE 2089124 053 754106 324 0-0 5 Metals N11 N11-NW 2088552 053 754106 324 0-0 5 Metals | Upper Walnut Dramage | N10 | N10-NE | 2089064 615 | 752962 324 | S 0-0 | Metals | 6010 |
| N10 N10-SE 2089124 053 752390 324 0-0 5 Metals N10 N10-SW 2088552 053 752390 324 0-0 5 Metals N11 DE62-000 2088832 500 753808 500 0-0 5 Metals N11 N11-NE 2089124 053 754106 324 0-0 5 Metals N11 N11-NW 2088552 053 754106 324 0-0 5 Metals | Upper Walnut Dramage | N10 | N10-NW | 2088552 053 | 752962 324 | S 0-0 | Metals | 6010 |
| N10 N10-SW 2088552 053 752390 324 0-0 5 Metals N11 DE62-000 2088832 500 753808 500 0-0 5 Metals N11 N11-NE 2089124 053 754106 324 0-0 5 Metals N11 N11-NW 2088552 053 754106 324 0-0 5 Metals | Upper Walnut Dramage | N10 | N10-SE | 2089124 053 | 752390 324 | S 0-0 | Metals | 6010 |
| N11 DE62-000 2088832 500 753808 500 0-0 5 Metals N11 N11-NE 2089124 053 754106 324 0-0 5 Metals N11 N11-NW 2088552 053 754106 324 0-0 5 Metals | Upper Walnut Dramage | N10 | N10-SW | 2088552 053 | 752390 324 | <i>§</i> 0-0 | Metals | 6010 |
| N11 N11-NE 2089124 053 754106 324 0-0 5 Metals N11 N11-NW 2088552 053 754106 324 0-0 5 Metals | Upper Walnut Dramage | N11 | DE62-000 | 2088832 500 | 753808 500 | 9-0-0 | Metals | 6010 |
| N11 N11-NW 2088552 053 754106 324 0-0 5 Metals | Upper Walnut Dramage | N11 | N11-NE | 2089124 053 | 754106 324 | 9 0-0 | Metals | 6010 |
| | Upper Walnut Dramage | N11 | N11-NW | 2088552 053 | 754106 324 | 0-0 5 | Metals | 6010 |

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| Analytical Method | 6010 | 6010 | Alpha Spec 6010 |
|--------------------------|----------------------|----------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| Analyte | Metals | Metals | Radionuclides Metals |
| Depth Interval (feet) | 0-0 \$ | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 | 9-0-2 | 9-0 5 | 9-0-2 | 9-0-0 | 0-0 \$ | 9-0-0 | 0-0 5 | 0-0 5 |
| Northing | 753460 026 | 753534 324 | 752665 500 | 752962 324 | 753085 843 | 752390 324 | 752390 324 | 753808 500 | 754106 324 | 754106 324 | 753534 324 | 753534 324 | 754951 500 | 755250 324 | 755250 324 |
| Easting | 2089124 053 | 2088552 053 | 2089975 500 | 2090268 053 | 2089880 363 | 2090268 053 | 2089696 053 | 2089975 500 | 2090268 053 | 2089696 053 | 2090268 053 | 2089696 053 | 2088832 500 | 2089124 053 | 2088552 053 |
| Location Code | N11-SE | N11-SW | DK56-000 | O10-NE | O10-NW | O10-SE | O10-SW | DK62-000 | O11-NE | 011-NW | 011-SE | 011-SW | DE67-000 | N12-NE | N12-NW |
| Cell Number | N11 | N11 | 010 | 010 | 010 | 010 | 010 | 011 | 011 | 011 | 011 | 011 | N12 | N12 | N12 |
| Exposure Unit | Upper Walnut Dramage | Upper Walnut Dramage | Upper Walnut Drainage | Upper Walnut Dramage | Upper Walnut Dramage | Upper Walnut Drainage | Upper Walnut Dramage | Upper Wainut Dramage | Lower Walnut Dramage | Lower Walnut Drainage | Lower Walnut Dramage |

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| Exposure Unit | Cell Number Location Co | Location Code | Easting | Northing | Depth Interval (feet) | Analyte | Analytical Method |
|-----------------------|-------------------------|---------------|-------------|------------|--------------------------|-------------------------|----------------------|
| Lower Walnut Drainage | N12 | N12-SE | 2089124 053 | 754678 324 | 9-0 | Radionuclides Metals | Alpha Spec 6010 |
| Lower Walnut Drainage | N12 | N12-SW | 2088552 053 | 754678 324 | 9-0 | Radionuclides Metals | Alpha Spec 6010 |
| Lower Walnut Drainage | N13 | DE73-000 | 2088832 500 | 756094 500 | 9-0 2 | Radionuclides Metals | Alpha Spec 6010 |
| Lower Walnut Drannage | N13 | N13-NE | 2089124 053 | 756394 324 | 9-0-0 | Radionuclides Metals | Alpha Spec 6010 |
| Lower Walnut Drainage | N13 | N13-NW | 2088552 053 | 756394 324 | S 0-0 | Radionuclides Metals | Alpha Spec 6010 |
| Lower Walnut Drainage | N13 | N13-SE | 2089124 053 | 755822 324 | S 0-0 | Radionuclides Metals | Alpha Spec 6010 |
| Lower Walnut Dramage | N13 | N13-SW | 2088552 053 | 755822 324 | 0-0 \$ | Radionuclides Metals | Alpha Spec 6010 |
| Lower Walnut Dramage | N14 | DE78-000 | 2088756 390 | 757020 395 | 9-0-0 | Radionuclides Metals | Alpha Spec 6010 |
| Lower Walnut Drainage | N14 | N14-NE | 2089111 261 | 757141 771 | 9-0 \$ | Radionuclides Metals | Alpha Spec 6010 |
| Lower Walnut Drainage | N14 | N14-NW | 2088488 093 | 757256 899 | 9-0 | Radionuclides Metals | Alpha Spec 6010 |
| Lower Walnut Dramage | N14 | N14-SE | 2089111 261 | 756838 403 | 0-0 5 | Radionuclides Metals | Alpha Spec 6010 |
| Lower Walnut Dramage | N14 | N14-SW | 2088488 093 | 756863 987 | 0-0 5 | Radionuclides Metals | Alpha Spec 6010 |
| Lower Walnut Dramage | 012 | DK67-000 | 2089975 500 | 754951 500 | 0-0 \$ | Radionuclides Metals | Alpha Spec 6010 |
| Lower Walnut Dramage | 012 | O12-NE | 2090268 053 | 755250 324 | 0-0 \$ | Radionuclides Metals | Alpha Spec 6010 |
| Lower Walnut Dramage | 012 | O12-NW | 2089696 053 | 755250 324 | 0-0 5 | Radionuclides Metals | Alpha Spec 6010 |

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| Analytical Method | Alpha Spec 6010 | Alpha Spec 6010 | Alpha Spec 6010 | Alpha Spec 6010 | Alpha Spec 6010 | Alpha Spec 6010 | Alpha Spec 6010 | Alpha Spec | Alpha Spec | Alpha Spec | Alpha Spec | Alpha Spec | Alpha Spec | Alpha Spec | Alpha Spec | Alpha Spec |
|--------------------------|-------------------------|-------------------------|-------------------------|------------------------|-------------------------|------------------------|-------------------------|-----------------------|-----------------------|----------------------|----------------------|-----------------------|-----------------------|-----------------------|-----------------------|----------------------|
| Amalyte | Radionuclides Metals | Radionuclides Metals | Radionuclides Metals | Radionuchdes Metals | Radionuclides Metals | Radionuchdes Metals | Radionuclides Metals | Radionuclides | Radionuclides | Radionuclides | Radionuclides | Radionuclides | Radionuclides | Radionuclides | Radionuclides | Radionuclides |
| Depth Interval (feet) | 0-0 \$ | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 | 9-0 | 9-0 | 0-0 5 | 0-0 5 | 0-0 | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 |
| o Softmage | 754678 324 | 754678 324 | 756067 176 | 756394 324 | 756394 324 | 755822 324 | 755822 324 | 752665 500 | 752962 324 | 752962 324 | 752390 324 | 752390 324 | 753808 500 | 754106 324 | 754106 324 | 753534 324 |
| . Easting | 2090268 053 | 2089696 053 | 2089952 292 | 2090268 053 | 2089696 053 | 2090268 053 | 2089696 053 | 2091118 500 | 2091412 053 | 2090840 053 | 2091412 053 | 2090840 053 | 2091118 500 | 2091412 053 | 2090840 053 | 2091412 053 |
| Location Code | 012-SE | 012-SW | DK73-000 | 013-NE | 013-NW | 013-SE | 013-SW | DP56-000 | P10-NE | P10-NW | P10-SE | P10-SW | DP62-000 | P11-NE | P11-NW | P11-SE |
| Cell Number | 012 | 012 | 013 | 013 | 013 | 013 | 013 | P10 | P10 | P10 | P10 | P10 | P11 | P11 | P11 | P11 |
| Exposure Unit | Lower Walnut Dramage | Lower Walnut Dramage | Lower Walnut Dramage | Lower Walnut Dramage | Lower Walnut Dramage | Lower Walnut Dramage | Lower Walnut Dramage | Lower Walnut Drainage | Lower Walnut Drainage | Lower Walnut Dramage | Lower Walnut Dramage | Lower Walnut Drainage | Lower Walnut Drainage | Lower Walnut Drainage | Lower Walnut Drainage | Lower Walnut Dramage |

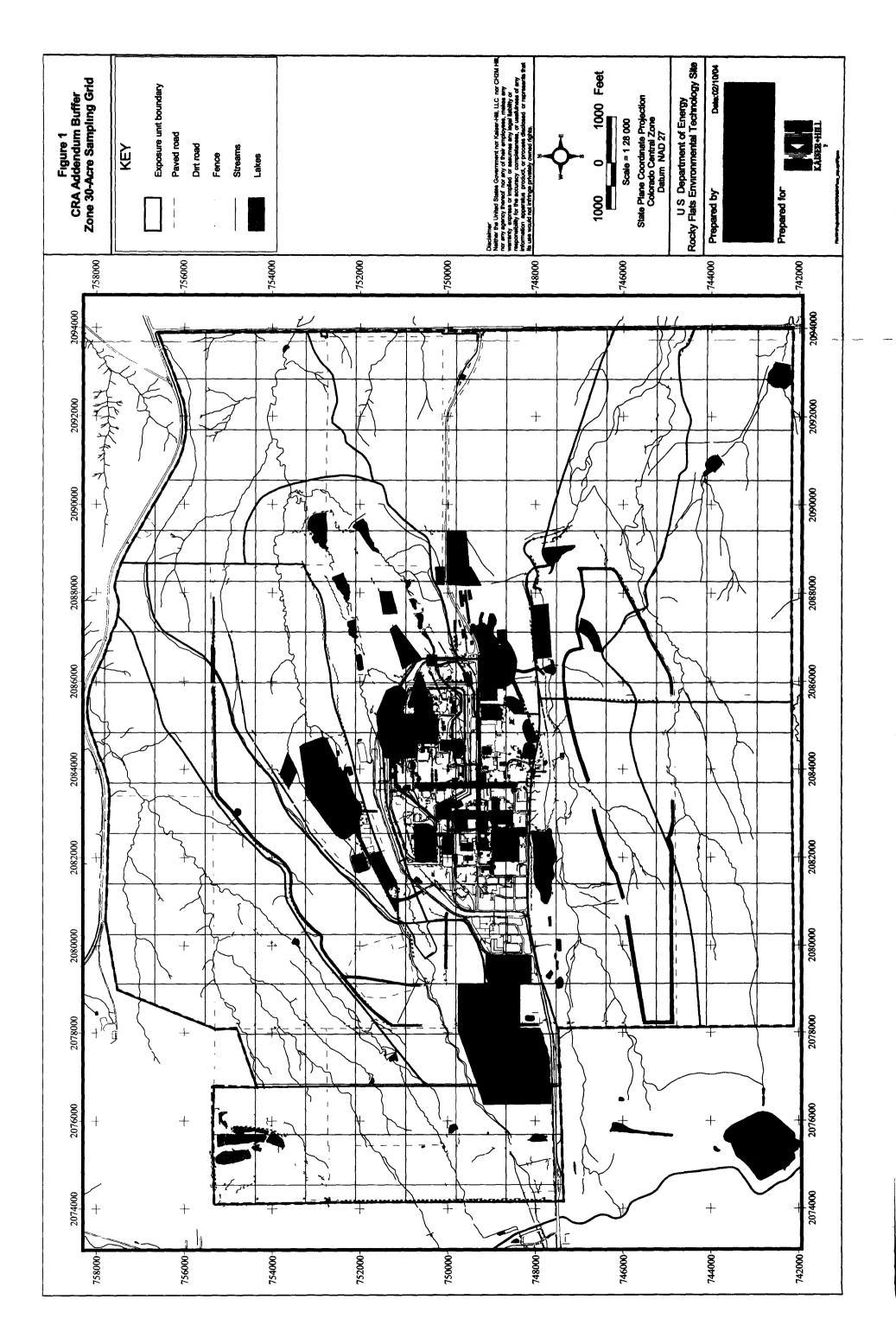
| Analytical Method | Alpha Spec | Alpha Spec 6010 | Alpha Spec |
|--------------------------|-----------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| Analyte | Radionuclides | Radionuclides Metals | Radionuclides | Radionuclides | Radionuclides | Radionuclides | Radionuclides |
| Depth Interval (feet) | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 \$ | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 | 0-0 5 |
| Northing | 753534 324 | 754951 500 | 755250 324 | 755250 324 | 754678 324 | 754678 324 | 755741 843 | 755956 849 | 755999 652 | 755657 224 | 755669 454 | 752665 500 | 752962 324 | 752962 324 | 752390 324 | 752390 324 |
| Easting | 2090840 053 | 2091118 500 | 2091412 053 | 2090840 053 | 2091412 053 | 2090840 053 | 2091700 590 | 2092354 265 | 2091023 497 | 2092363 170 | 2091026 821 | 2092261 500 | 2092556 053 | 2091984 053 | 2092556 053 | 2091984 053 |
| Cocation Code | P11-SW | DP67-000 | P12-NE | P12-NW | P12-SE | P12-SW | DS71-000 | P13-NE | P13-NW | P13-SE | P13-SW | DV56-000 | Q10-NE | Q10-NW | Q10-SE | Q10-SW |
| Cell Number | P11 | P12 | P12 | P12 | P12 | P12 | P13 | P13 | P13 | P13 | P13 | Q10 | Q10 | Q10 | Q10 | Q10 |
| Exposure Unit | Lower Walnut Drainage | Lower Walnut Dramage | Lower Walnut Dramage | Lower Walnut Dramage | Lower Walnut Drainage | Lower Walnut Dramage | Lower Walnut Drainage | Lower Walnut Dramage |

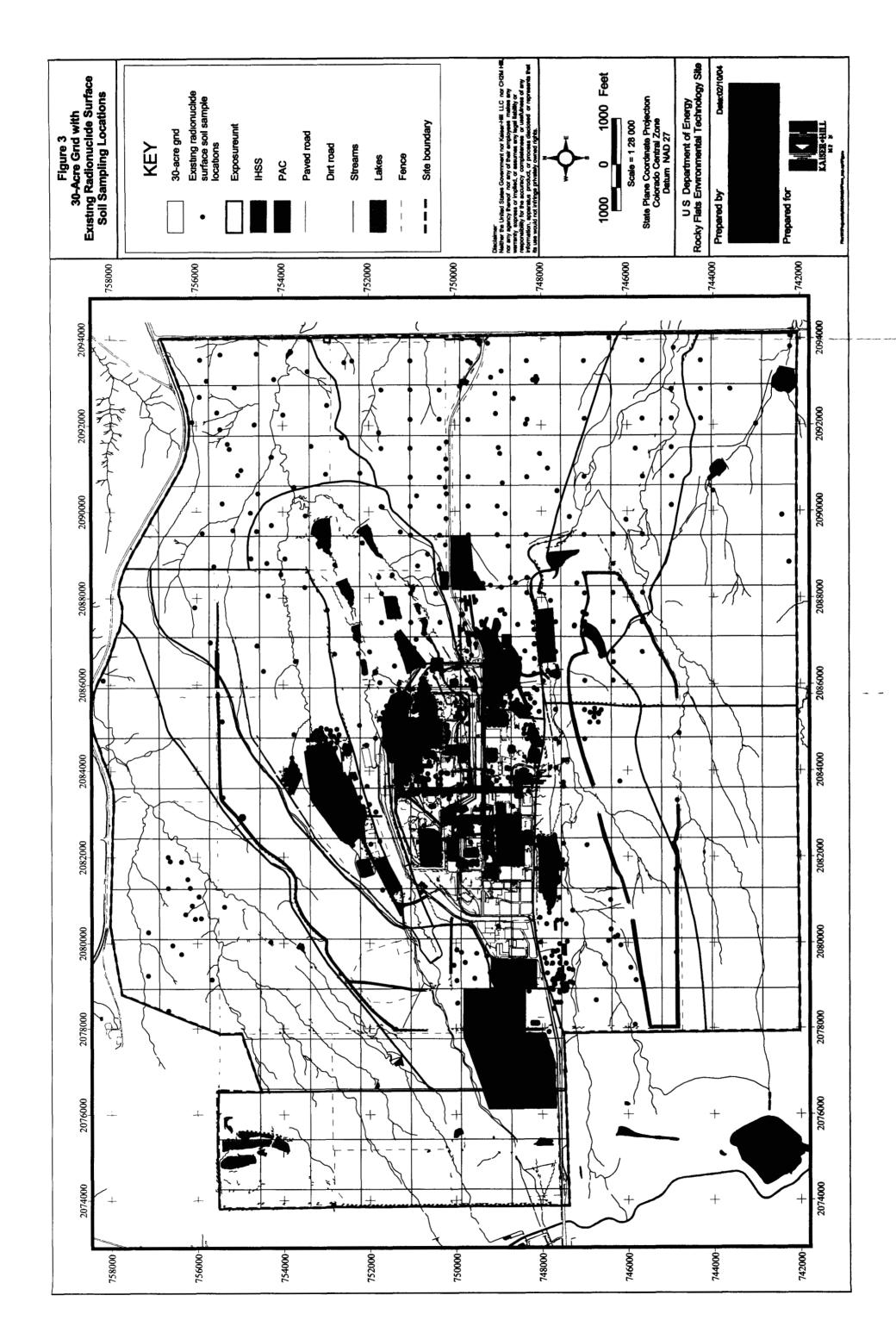
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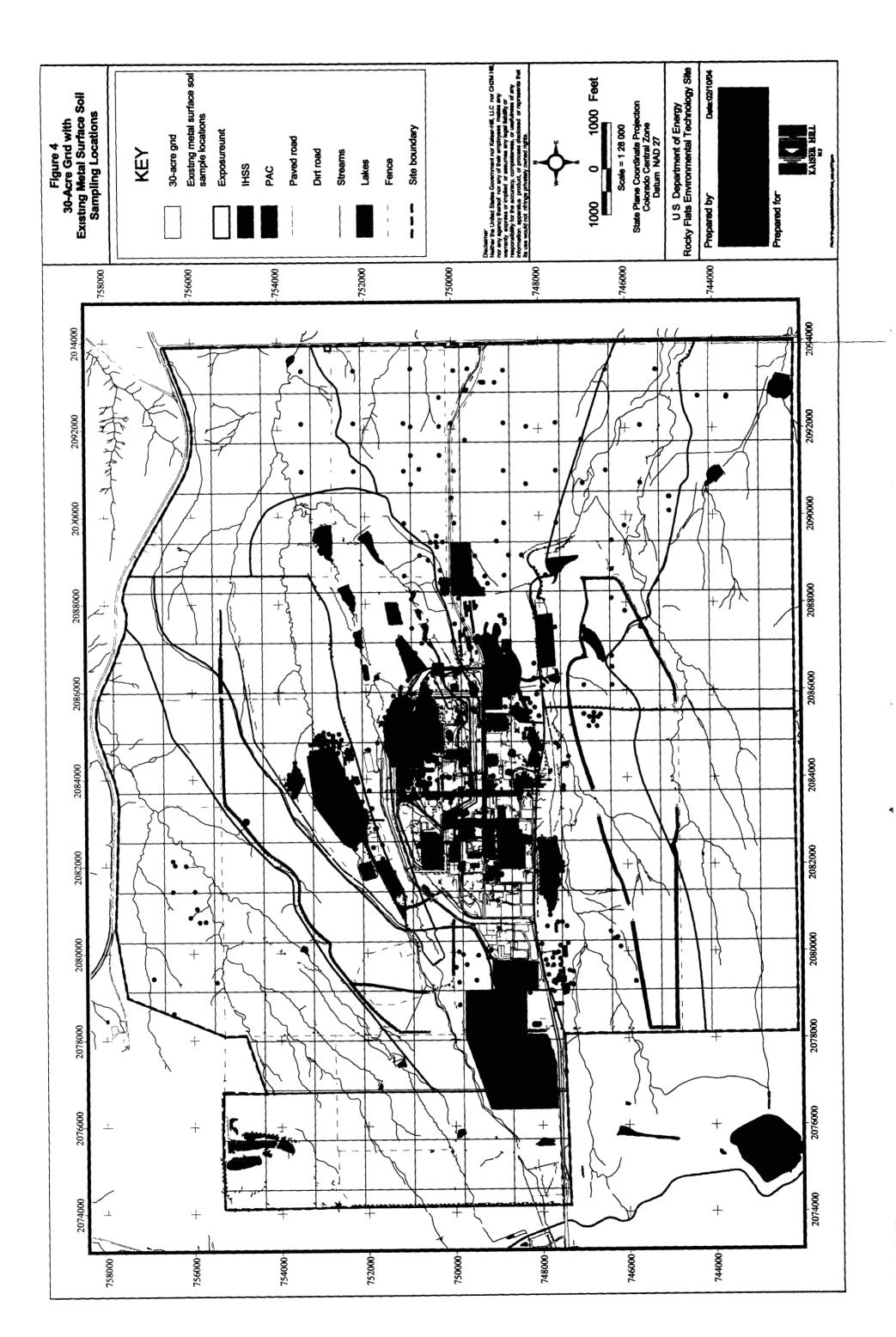
| t de | | | | TOWNING TO SERVICE TO | repur mervar (feet) | | Method |
|--|-----|----------|-------------|---|------------------------|-------------------------|--------------------|
| Lower Walnut Drainage | Q11 | DV62-000 | 2092261 500 | 753808 500 | 5 0-0 | Radionuclides | Alpha Spec |
| Lower Walnut Dramage | Q11 | Q11-NE | 2092556 053 | 754106 324 | 0-0 5 | Radionuclides | Alpha Spec |
| Lower Walnut Drainage | Q11 | Q11-NW | 2091984 053 | 754106 324 | 9 0-0 | Radionuclides | Alpha Spec |
| Lower Walnut Dramage | Q11 | Q11-SE | 2092556 053 | 753534 324 | 0-0 5 | Radionuclides | Alpha Spec |
| Lower Walnut Dramage | Q11 | Q11-SW | 2091984 053 | 753534 324 | 0-0 5 | Radionuclides | Alpha Spec |
| Lower Walnut Dramage | Q12 | DV67-000 | 2092261 500 | 754951 500 | 0-0 5 | Radionuclides Metals | Alpha Spec 6010 |
| Lower Walnut Drainage | Q12 | Q12-NE | 2092556 053 | 755250 324 | S 0-0 | Radionuclides Metals | Alpha Spec 6010 |
| Lower Walnut Drainage | Q12 | Q12-NW | 2091984 053 | 755250 324 | 5 0-0 | Radionuclides Metals | Alpha Spec 6010 |
| Lower Walnut Drainage | Q12 | Q12-SE | 2092556 053 | 754678 324 | 9-0 | Radionuclides Metals | Alpha Spec 6010 |
| Lower Walnut Dramage | Q12 | Q12-SW | 2091984 053 | 754678 324 | S 0-0 | Radionuclides Metals | Alpha Spec 6010 |
| Lower Walnut Drainage | R12 | EB67-000 | 2093368 995 | 754950 277 | 9-0 5 | Radionuclides Metals | Alpha Spec 6010 |
| Lower Walnut Drainage | R12 | R12-NE | 2093700 053 | 755250 324 | 0-0 5 | Radionuclides Metals | Alpha Spec 6010 |
| Lower Walnut Dramage | R12 | R12-NW | 2093128 053 | 755250 324 | 0-0 \$ | Radionuclides Metals | Alpha Spec 6010 |
| Lower Walnut Drainage | R12 | R12-SE | 2093700 053 | 754678 324 | 9-0 2 | Radionuclides Metals | Alpha Spec 6010 |
| Lower Walnut Dramage | R12 | R12-SW | 2093128 053 | 754678 324 | 0-0 5 | Radionuclides Metals | Alpha Spec 6010 |
| Lower Walnut Dramage | R13 | EB73-000 | 2093402 859 | 755971 011 | 0-0 5 | Radionuclides Metals | Alpha Spec 6010 |

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| 2 3069 | | | | |
|--------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| Analytical Method | Alpha Spec 6010 | Alpha Spec 6010 | Alpha Spec 6010 | Alpha Spec 6010 |
| Analyte | Radionuclides Metals | Radionuclides Metals | Radionuclides Metals | Radionuclides Metals |
| Depth Interval (feet) | 0-0 5 | 0-0 \$ | 0-0 5 | 0-0 5 |
| Northing | 756253 683 | 756247 569 | 755730 602 | 755718 372 |
| Basting | 2093700 053 | 2093128 053 | 2093700 053 | 2093128 053 |
| Location Code | R13-NE | R13-NW | R13-SE | R13-SW |
| Cell Number | R13 | R13 | R13 | R13 |
| Exposure Unit | Lower Walnut Drainage | Lower Walnut Drainage | Lower Walnut Drainage | Lower Walnut Dramage |







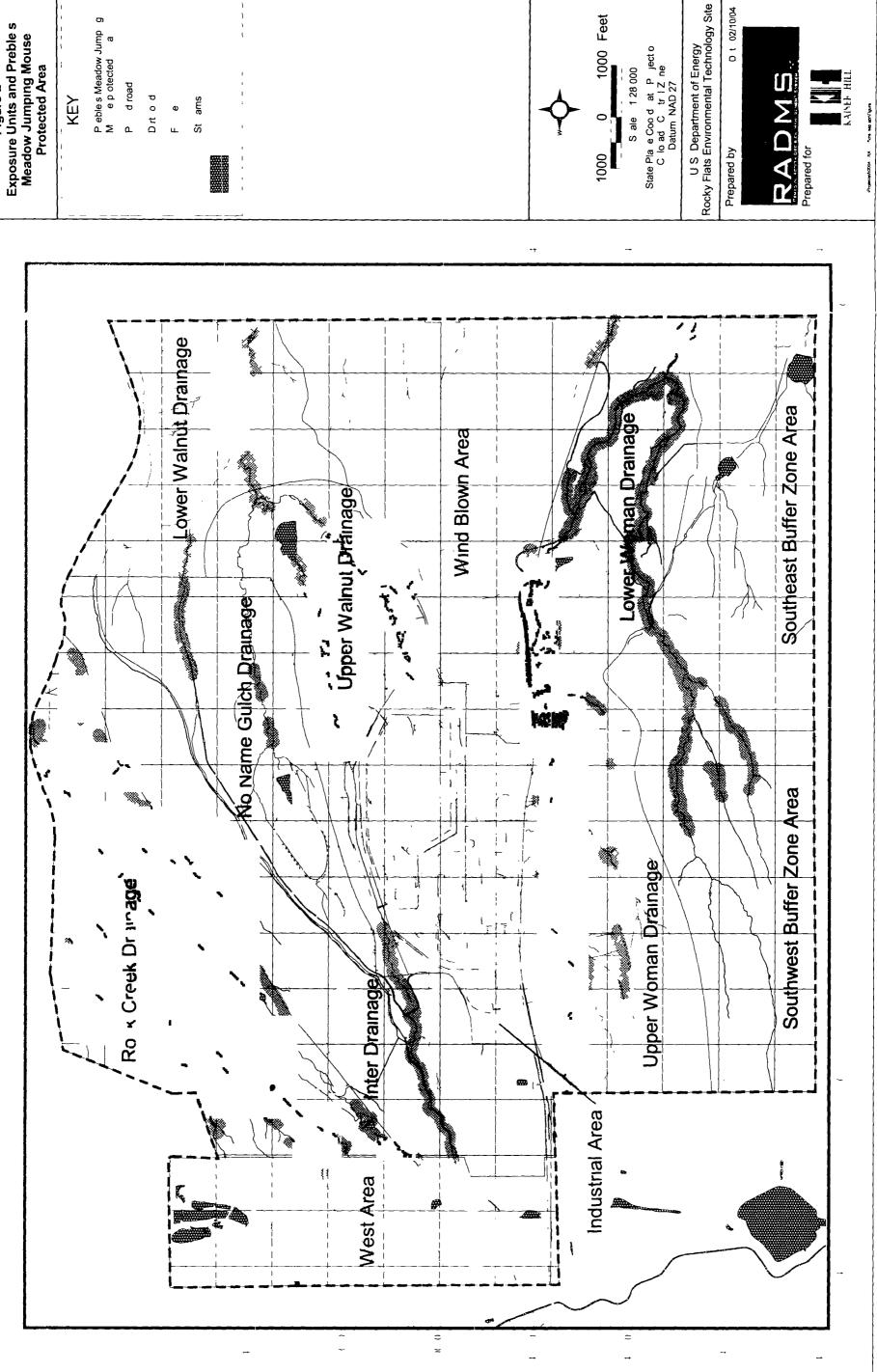


Figure 2
Exposure Units and Preble s
Meadow Jumping Mouse
Protected Area

P ebles Meadow Jump g M e p otected a P d road

S ale 1 28 000

D t 02/10/04

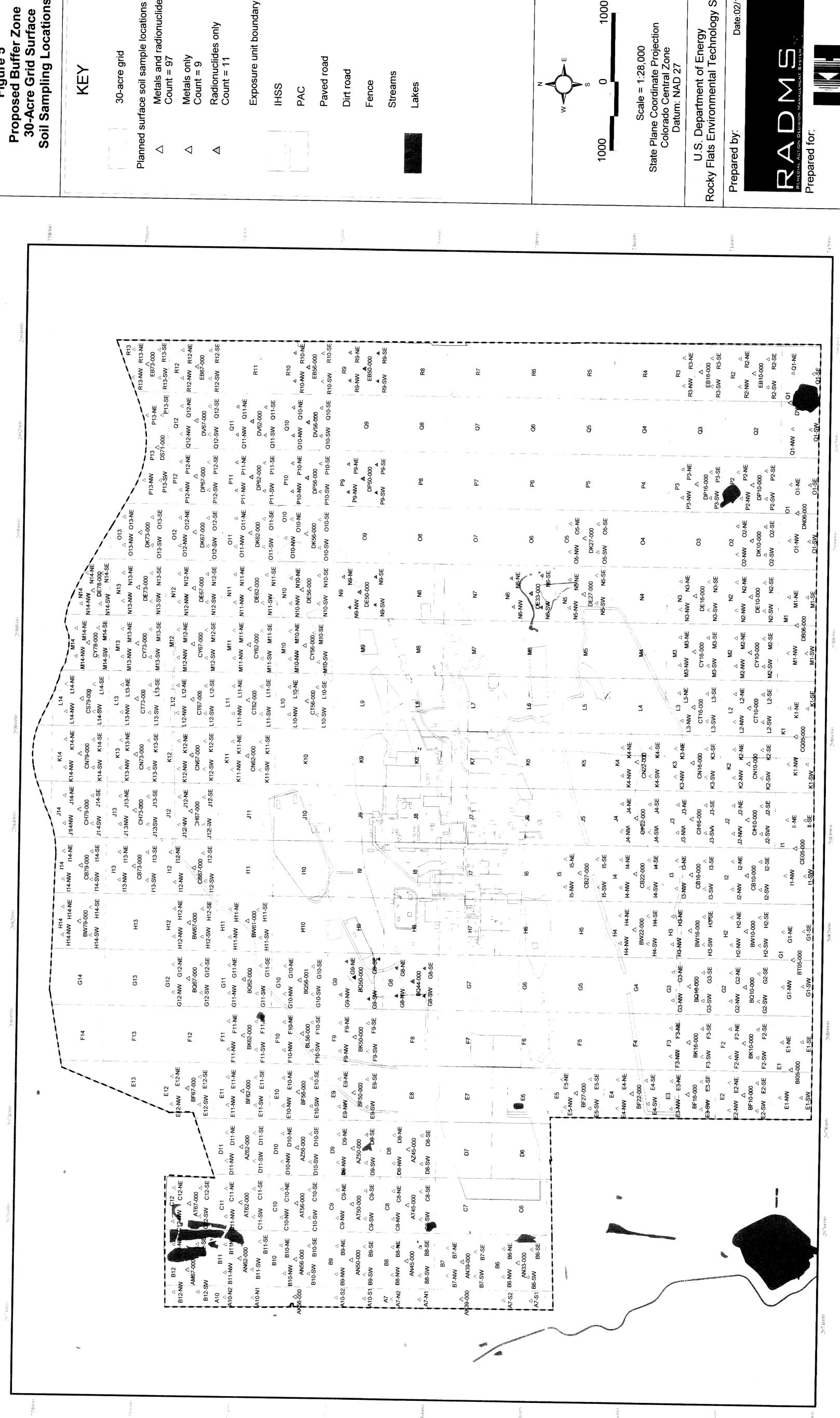
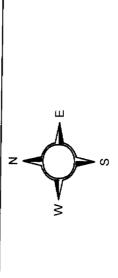


Figure 5 Proposed Buffer Zone 30-Acre Grid Surface Soil Sampling Locations

30-acre grid

ΚEΥ

Metals and radionuclides Count = 97 Exposure unit boundary Radionuclides only Count = 11 Metals only Count = 9 Paved road Streams Dirt road Fence Lakes IHSS PAC



1000 Feet State Plane Coordinate Projection Colorado Central Zone Datum: NAD 27 Scale = 1:28,000

U.S. Department of Energy Rocky Flats Environmental Technology Site

Prepared by:

Date:02/10/04

KAISER+HILL COMPANY